Product	ISOPROPYL ALCOHOL
Revision date	18 February 2021
Revision	3

CarbonGroup
Intelligent Solutions. Delivered

Safety Data Sheet (SDS)

according to Regulation (EC) No. 1907/2006

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	**ISOPROPYL ALCOHOL**
CAS	67-63-0
EC	200-661-7
Index Number	N/A
Reach Registration No	01-2119457558-25-0000
Other means of identification	ALCOHOL 100%. IPA 100%. IPA. Isopropyl Alcohol – Premium Grade. IPA Premium Grade. Propan-2-ol. Isopropanol. IPA PREMIUM.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Raw material for photochemicals. Raw material for cleaning agents and disinfectants. Process control substance. Solvent for industrial use.
Uses advised against	No uses advised against are identified.

1.3 Details of the supplier of the safety data sheet

Supplier	THE CARBON GROUP RINGASKIDDY CORK Ireland Tel: +353 21 4378988
Contact person	info@ecoonline.com

1.4 Emergency telephone number

Emergency telephone	Emergency Contact Number:Available 24 Hours +353 21 437 8988 (Mon - Fri 8am - 5pm)
National emergency telephone number	Outside those hours, contact National Poisons Information Centre, Beaumont Hospital. Members of Public: +353 (1) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week) Healthcare Professionals: +353 (1) 809 2566 (24 hour service)

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and chemical hazards	Flam. Liq 2- H225
Human health	Eye Irrit.2A - H319, STOT SE 3 - H336
Environment	Not classified

2.2 Label elements

Label in accordance with (EC) no. 1272/2008

Signal word Danger

Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements
Prevention
P210 Keep away from heat/ sparks/open flames/hot surfaces. — No smoking.
P261 Avoid breathing dust/fume/ gas/mist/vapours/spray.
P280 Wear protective gloves/ protective clothing/eye protection/face protection.
Response
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378 In case of fire: Use water spray, alcohol resistant foam, carbon dioxide or dry powder for extinction.

2.3 Other hazards

None known.

Section 3: Composition/information on ingredients

3.1 Substance

Name	Product identifier	Regulation (EC) No 1272/2008	%
propan-2-ol	CAS-No.: 67-63-0 EC No.: 200-661-7 REACH Reg No.: 01-2119457558-25-0000	Eye Irrit.2A - H319, Flam. Liq 2- H225, STOT SE 3 - H336	60-100%

The full text for all hazard statements are displayed in section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

3.2 Mixtures

Not applicable.

Section 4: First aid measures

4.1 Description of first aid measures

General information Provide general first aid, rest, warmth and fresh air. As a general rule, in case of doubt or if symptoms persist, always call a doctor. Seek medical attention for all burns and eye injuries, regardless how minor they may seem. First aid personnel must be aware of own risk during rescue.

Inhalation If this product is inhaled and symptoms occur, move the exposed person to fresh air promptly. If breathing is difficult, oxygen should be administered by qualified personnel. If not breathing, give artificial respiration and seek medical attention. Get medical attention.

Ingestion If this product is ingested, remove victim immediately from source of exposure. Do not induce vomiting. Rinse mouth out and then drink plenty of water. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head low and/or keep airway clear. Keep person under observation. Seek medical advice (show the label where possible).

Skin contact Remove affected person from source of contamination. Remove contaminated clothing. If this product contacts the skin, immediately flush the affected area with plenty of clean running water for at least fifteen (15) minutes. Get medical attention if symptoms persist.

Eye contact Avoid contaminating unaffected eye. Remove contact lenses if present and easy to do so. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation Breathing large amounts may be harmful. May affect the respiratory system and mucous membranes. May cause central nervous system depression. Symptoms include headache, dizziness, drowsiness, stupor, incoordination, unconsciousness, coma and possible death.

	Can affect peripheral nervous system, blood, urinary system, and liver.
Ingestion	Swallowing large amounts may be harmful. May cause gastrointestinal tract irritation with nausea, vomiting and diarrhea, abdominal pain. May affect the urinary system, cardiovascular system, sense organs, behavior or central nervous system (somnolence, generally depressed activity, irritability, headache, dizziness, drowsiness), liver, and respiratory system (breathing difficulty).
Skin contact	Prolonged contact may cause redness, irritation and dry skin.
Eye contact	Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to the physician	Treat symptomatically.

Section 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media	Use water spray, alcohol resistant foam, carbon dioxide or dry powder.
Unsuitable extinguishing media	High volume water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products	Combustion may lead to the release of toxic gases/vapours or fumes of carbon dioxide.
Unusual fire & explosion hazards	Vapours may form explosive mixture with air at high concentrations. Flammable vapours may spread to sources of ignition or accumulate in confined spaces.
Specific hazards	Vapours form potentially explosive mixtures with air. If heated, harmful vapours may be formed.

5.3 Advice for firefighters

Special fire fighting procedures	Avoid breathing fire vapours. Keep up-wind to avoid fumes. Ventilate closed spaces before entering them. Water spray should be used to cool containers.
Protective equipment for firefighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Use proper personal protection (refer to Section 8). Eliminate all sources of ignition. Avoid inhalation of vapours and contact with skin and eyes. Read and follow manufacturer's recommendations. Avoid prolonged or repeated exposure. In case of inadequate ventilation, use respiratory protection. Evacuate and ventilate area. Take precautionary measures against static discharges. Use non-sparking hand tools and explosion proof electrical equipment. Do not allow to enter drains (danger of explosion).
For emergency responders	Follow safe handling advice and personal protective equipment recommendations for normal use of product.

6.2 Environmental precautions

Environmental precautions	Do not discharge into drains, water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

Spill clean up methods	Eliminate all ignition sources. Ventilate and evacuate the area. Wear necessary protective equipment. Stop leak if possible without risk. Cover drains. Use non-sparking hand tools and explosion proof electrical equipment for clean up. In case of a large scale of spill, dyke area with sand to stop the spill spreading. Absorb spillage with non-combustible, absorbent material - sand. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. Wash and dry spill area as normal.

6.4 Reference to other sections

Reference to other sections For waste disposal, see section 13. See section 1 for emergency contact. For personal protection, see section 8.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handling Provide good ventilation. Wear appropriate respirator when ventilation is inadequate. Use proper personal protection when handling (refer to Section 8). Protect against static electricity. Keep away from heat, sparks and open flame.
Avoid prolonged or repeated contact. Avoid inhalation of vapours and contact with skin and eyes. Wash thoroughly after handling. Do not use contact lenses. Do not mix with other chemicals. Do not eat, drink or smoke when using the product.

7.2 Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly closed original container in a dry, cool and well-ventilated place. Prohibit ignition sources close to storage area. Ground container and transfer equipment to eliminate static electric sparks. Keep separate from food, feedstuffs, fertilisers and other sensitive material.
Keep away from incompatible materials (see section 10).
Temperature class: T2. Storage temperature: Store at temperatures between 5°C and 25°C.

Storage class Flammable liquid storage.
German storage class: 3 Flammable Liquids.

7.3 Specific end use(s)

Specific end use(s) The identified uses are in section 1 of this Safety Data Sheet.
Usage description Use only according to directions. Replace and tighten cap after use.

Section 8: Exposure controls/Personal protection

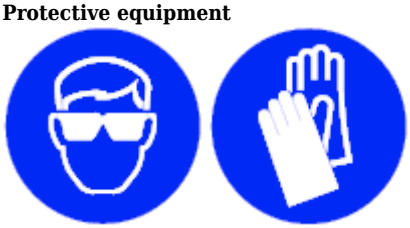
8.1 Control parameters

Component	STD	TWA (8 Hrs)		STEL (15mins)		Notes
propan-2-ol	OEL	200 ppm		400 ppm		Sk

Ingredient comments Ireland, Occupational Exposure Limits 2020.
DNEL:
(WORKERS) Skin contact - Long-term exposure - systemic effects: 888 mg/kg.
(WORKERS) Inhalation - Long-term exposure - systemic and local effects: 500 mg/m3.
(CONSUMER) Skin contact - Long-term exposure - systemic and local effects: 319 mg/kg.
(CONSUMER) Inhalation - Long-term exposure - systemic and local effects: 89 mg/m3.
(CONSUMER) Ingestion - Long-term exposure - systemic and local effects: 26 mg/kg.
PNEC:
PNEC water (freshwater): 140.9 mg/L
PNEC water (marine water): 140.9 mg/L
PNEC water (intermittent release): 140.9 mg/L
PNEC sediment: 552 mg/kg
PNEC soil: 28 mg/kg
PNEC sewage treatment plant (stp): 2,251 mg/L
PNEC oral: 160 mg/kg food

8.2 Exposure Controls

Protective equipment



Engineering measures	Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Use explosion-proof ventilation equipment.
Respiratory equipment	Not normally required if good ventilation is maintained. In inadequately ventilated areas, where workplace limits are exceeded: (Suitable respiratory protection for lower concentrations or short-term effect.) Respirator with a vapour filter (EN 141). Type A/organic vapour protective components recommended. ABEK (EN 14387). Where aerosols are in use, or smoke and mist occur, use combination filter - A-P2 or ABEK-P2 - in compliance with EN 141. In case of intensive or longer exposure: Use a full-face supplied air respirator (EN 145). Consult manufacturer for specific advice. Use respirators and components tested and approved under appropriate government standards such as CEN (EU).
Hand protection	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374) is recommended. Selection of the glove material depends on consideration of the penetration times, rates of diffusion and degradation, and concentration specific to the workplace. In case of prolonged and intensive contact: Suggested material: Nitrile. Break through time: >480 minutes. Layer thickness: >= 0.35 mm. Suggested material: Butyl-rubber. Break through time: >480 minutes. Layer thickness: 0.5 mm. Splash contact: Suggested material: Polychloroprene (PCP). Break through time: >= 240 min Layer thickness: 0.5 mm. Consult manufacturer for specific advice. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Eye protection	Wear tightly fitting safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as EN 166(EU).
Other protection	Protective clothing should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Suggested PPE: Fire resistant cotton or equivalent full-length overalls with electrically conductive safety shoes/grounding straps. The selected clothing must satisfy the European norm standard EN 943.
Hygiene measures	DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.
Process conditions	Use only according to directions. Keep container tightly sealed when not in use. Ensure that eye flushing systems and safety showers are located close by in the work place. Ground/bond container and receiving equipment. Take precautionary measures against static discharge.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless.
Odour	Odour of alcohol.
Odour threshold - lower	No information available as testing has not been completed.
Odour threshold - upper	No information available as testing has not been completed.
pH-Value, Conc. Solution	Neutral.
pH-Value, Diluted solution	No information available as testing has not been completed.
Melting point	-89 °C.
Initial boiling point and boiling range	82 °C, 1.013 hPa.
Flash point	12 °C.
Evaporation rate	No information available as testing has not been completed.
Flammability state	No information available as testing has not been completed.
Flammability limit - lower(%)	2.
Flammability limit - upper(%)	12.

Vapour pressure	42 hPa, 20 °C. 60.2 hPa, 25 °C.
Vapour density (air=1)	1.05
Relative density	No information available as testing has not been completed.
Bulk density	No information available as testing has not been completed.
Solubility	Completely miscible with water.
Decomposition temperature	No information available as testing has not been completed.
Partition coefficient; n-Octanol/Water	at 25 °C: 0.05 log P(o/w) (OECD 107) Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.
Auto ignition temperature (°C)	425 °C.
Viscosity	Dynamic: 2.5 mPas, 20 °C. 2.1 mPas, 25 °C.
Explosive properties	Formation of explosive vapour is possible.
Oxidising properties	The product does not meet the criteria to be classified as oxidising.

9.2 Other information

Molecular weight	No information available as testing has not been completed.
Volatile organic compound	No information available as testing has not been completed.
Other information	Refractive index (20c) range: 1,376 - 1,378, Molar Mass: 60.11 g/mol

Section 10: Stability and reactivity

10.1 Reactivity

Reactivity	Liquid evaporates quickly. Vapours are heavier than air and will spread at floor level. Beware of reignition. Heating will lead to pressure increase: Danger of bursting and explosion. Vapours may form explosive mixture with air. Highly flammable liquid and vapour. Reactions may occur with strong oxidizing agents and acids.

10.2 Chemical stability

Stability	Stable under normal temperature conditions and recommended use.

10.3 Possibility of hazardous reactions

Hazardous reactions	For information on hazardous reaction see section 10.1.
Hazardous polymerisation	Hazardous polymerization is not expected to occur under normal temperatures and pressures.
Polymerisation description	Unknown.

10.4 Conditions to Avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. Avoid temperatures above 35°C. Avoid exposure to direct sunlight.

10.5 Incompatible materials

Materials to avoid	Strong acid, strong oxidizing agents, alkaline earth metals, aluminium, iron, amines Reacts at room temperature with alkali, less so with alkaline earth metals (with formation of hydrogen), at higher temperatures a measurably stronger reaction occurs.

10.6 Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Section 11: Toxicological information

11.1 Information on hazard classses as defined in Regulation (EC) No. 1272/2008

Toxicological information	No toxicological information for the overall finished product.
Acute toxicity (Oral LD50)	LD50 Rat, oral: 5840 mg/kg bw (OECD 401)
Acute toxicity (Dermal LD50)	LD50 Rabbit, dermal: 13900 mg/kg bw (OECD 402)
Acute toxicity (Inhalation LD50)	LC50 Rat, inhalative: > 25 mg/L/6h (OECD 403)
Serious eye damage/irritation	Causes serious eye irritation.
Skin corrosion/irritation	The product is not classified as a skin corrosion/irritation hazard.
Respiratory sensitisation	The product is not classified as a respiratory hazard.
Skin sensitisation	The product is not classified as a skin sensitisation hazard.
Germ cell mutagenicity	The product is not classified as a mutagen.
Carcinogenicity	The product is not classified as a carcinogen hazard.
Specific target organ toxicity - Single exposure:	
STOT - Single exposure	The product is classified as a single exposure specific target organ toxin.
Specific target organ toxicity - Repeated exposure:	
STOT - Repeated exposure	The product is not classified as a repeat exposure specific target organ toxin.
Inhalation	Breathing large amounts may be harmful. May affect the respiratory system and mucous membranes. May cause central nervous system depression. Symptoms include headache, dizziness, drowsiness, stupor, incoordination, unconsciousness, coma and possible death. Can affect peripheral nervous system, blood, urinary system, and liver.
Ingestion	Swallowing large amounts may be harmful. May cause gastrointestinal tract irritation with nausea, vomiting and diarrhea, abdominal pain. May affect the urinary system, cardiovascular system, sense organs, behavior or central nervous system (somnolence, generally depressed activity, irritability, headache, dizziness, drowsiness), liver, and respiratory system (breathing difficulty).
Skin contact	Prolonged contact may cause redness, irritation and dry skin.
Eye contact	Causes serious eye irritation.
Waste management	When handling waste, consideration should be made to the safety precautions applying to handling of the product.
Routes of entry	Eyes, skin, ingestion or inhalation.
Target organs	Eyes, skin, digestive system, respiratory system, central nervous system.
Aspiration hazards:	The product is not classified as an aspiration hazard.
Reproductive toxicity:	The product is not classified as a reproductive hazard.

11.2 Information on other hazards

Information on other hazards	None known.

Section 12: Ecological information

12.1 Toxicity

Acute toxicity - Fish	LC50 Pimephales promelas (fathead minnow): 9,640 mg/L/96h.
Acute toxicity - Aquatic invertebrates	EC50 Daphnia magna (Big water flea): 10,000 mg/L/48h.
Acute toxicity - Aquatic plants	No information available as testing has not been completed.
Acute toxicity - Microorganisms	No information available as testing has not been completed.
Chronic toxicity - Fish	No information available as testing has not been completed.
Chronic toxicity - Aquatic invertebrates	No information available as testing has not been completed.
Chronic toxicity - Aquatic plants	No information available as testing has not been completed.
Chronic toxicity - Microorganisms	No information available as testing has not been completed.
Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Eco toxilogical information	Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

12.2 Persistence and degradability

Degradability	Aerobic (53 %) Result: Readily biodegradable., Exposure time: 5 d, activated sludge, domestic, non-adapted, (literature value.)
Biological oxygen demand	No information available as testing has not been completed.
Chemical oxygen demand	No information available as testing has not been completed.

12.3 Bioaccumulative potential

Bioaccumulative potential	The product is not bioaccumulating. (log Pow <= 4).
Bioaccumulation factor	No information available as testing has not been completed.
Partition coefficient; n-Octanol/Water	at 25 °C: 0.05 log P(o/w) (OECD 107) Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

12.4 Mobility in soil

Mobility	The product is miscible with water. May spread in water systems.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	The product does not contain any PBT or vPvB Substances.

12.6 Endocrine disrupting properties

Endocrine disrupting properties	The product does not contain any substances with endocrine disrupting properties at a concentration above or equal to 0.1%.

12.7 Other adverse effects

Other adverse effects	None known.

Section 13: Disposal considerations

Waste management	When handling waste, consideration should be made to the safety precautions applying to handling of the product.

13.1 Waste treatment methods

Disposal methods	Dispose of waste and residues in accordance with local authority requirements. Do not dispose of waste with normal refuse or to sewer systems. Product: Following pre-treatment and observing the regulations for hazardous wastes, it must be taken to a permitted hazardous wastes landfill or hazardous wastes incinerator. Contaminated packaging: Can be used after re-conditioning.

Section 14: Transport information

14.1 UN number or ID number

UN no. (ADR)	UN1219
UN no. (IMDG)	UN1219
UN no. (IATA)	UN1219

14.2 UN proper shipping name

ADR proper shipping name	ISOPROPANOL (ISOPROPYL ALCOHOL)
IMDG proper shipping name	ISOPROPANOL (ISOPROPYL ALCOHOL)
IATA proper shipping name	ISOPROPANOL

14.3 Transport hazard class(es)

ADR class	3
IMDG class	3
IATA class	3

Transport labels

14.4 Packing group

ADR/RID/ADN packing group	II
IMDG packing group	II
IATA packing group	II

14.5 Environmental hazards

ADR	No
IMDG	No
IATA	No

14.6 Special precautions for user

EMS	F-E, S-D
Emergency action code	A180
Hazard no. (ADR)	33
Tunnel restriction code	(D/E)

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/Legislation specific for the substance or mixture

EU legislation	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments. The UN Globally Harmonized System (GHS) Safety Data Sheet format (Annex IV) is implemented as Annex II of REACH EU No 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Approved code of practice	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)

15.2 Chemical safety assessment

Chemical safety assessment	No chemical safety assessment has been carried out.

Section 16: Other information

General information	This Safety Data Sheet is in accordance with Reach Regulation (EC) No 453/2010
Revision comments	This is a third issue. [1]Information updated. [3]Information updated. [8]Information updated. [9]Information updated. [10]Information updated. [11]Information updated. [12]Information updated. [15]Information updated.
Revision date	18 February 2021
Supersedes date	20 July 2017
Revision	3
Safety data sheet status	Approved.

Hazard statements in full

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Disclaimer

Information contained in this publication, while accurate to the best knowledge and belief of Carbon Group, is not intended and should not be construed as a warranty or representation for which Carbon Group assumes any legal responsibility.Any information or advice obtained from Carbon Group otherwise than by means of this publication and whether relating to Carbon Group material or other materials, is also given in good faith. However, it remains at all times the responsibility of the customer to ensure that Carbon Group materials are suitable for the particular purpose intended. Insofar as materials not manufactured or supplied by Carbon Group are used with or instead of Carbon Group material, the customer should ensure that he has received from the manufacturer or supplier all technical data and other information relating to such materials. Carbon Group accepts no liability whatsoever (except as otherwise expressly provided by law) arising out of the use the information supplied.

Exposure Scenario 1: Manufacture of substance; Use of substance as an intermediate

List of use descriptors

Sector of uses [SU]:
SU3: Industrial uses
SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
SU9: Manufacture of fine chemicals

Application

Activities and processes:
Manufacture:
Manufacture of substance or use as process chemical or extracting agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Intermediate:
Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Remark:
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Manufacture of substance (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC1: Manufacture of the substance
ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6a: Use of intermediate

Operational conditions

Other information:
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (no sampling)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00

Dermal: 0.00

Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (with sample collection)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Provide a good standard of general ventilation (5 to 15 air changes per hour).
Ensure samples are obtained under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures with sample collection
With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Provide a good standard of general ventilation (5 to 15 air changes per hour).
Ensure samples are obtained under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures, batch process (open); with sample collection

With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10

Dermal: 0.01

Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Recommended: Provide a good standard of general ventilation (5 to 15 air changes per hour).

Ensure samples are obtained under containment or extract ventilation.

Contributing exposure scenario 6

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Daily: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
With sample collection
With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Handle in a fume cupboard or under extract ventilation. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 8

Bulk transfers (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Daily: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers

Without local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.74

Dermal: 0.01

Combined for all exposure routes: 0.75

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Bulk transfers (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers, open (aerosols)
With local exhaust ventilation, Efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 2.5 ppm (LEV Efficiency of 90%)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.74
Dermal: 0.01
Combined for all exposure routes: 0.75

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Ensure material transfers are under containment or extract ventilation.
Clear lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Cleaning work and maintenance. Recommended: With local exhaust ventilation, Efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately.
Recommended:
Drain down system prior to equipment break-in or maintenance.
Provide extract ventilation to material transfer points and other openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

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Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Store substance within a closed system. Avoid dip sampling.
Recommended:
Provide extract ventilation to material transfer points and other openings.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 2: Distribution of substance

List of use descriptors

Sector of uses [SU]:
SU3: Industrial uses
SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
SU9: Manufacture of fine chemicals

Application

Activities and processes: Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Distribution of substance (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC1: Manufacture of the substance
ERC2: Formulation into mixture
ERC3: Formulation in materials
ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5: Use at industrial site leading to inclusion into/onto article
ERC6a: Use of intermediate
ERC7: Use of functional fluid at industrial site

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (no sampling)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 4.91618E-05

Dermal: 0.001542793

Combined for all exposure routes: 0.001591955

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (with sample collection)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures batch process (closed systems); with sample collection
With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures batch process (open systems);

With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10

Dermal: 0.01

Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.

Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 minutes - 1 hours

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Process sampling

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Use duration factor dec 0,2)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid dip sampling.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified. Recommended: Handle in a fume cupboard or under extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling. Recommended: Ensure material transfers are under containment or extract ventilation. Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Bulk transfers (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers. Recommended: Outdoor use; With local exhaust ventilation or Respiratory protective device (LEV or RPE)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Ensure material transfers are under containment or extract ventilation.
Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Drum and small package filling (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum and small package filling

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear spills immediately. Put lids on containers immediately after use. Recommended: Fill containers/cans at dedicated fill points supplied with local extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Equipment cleaning and maintenance. Recommended: With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.27

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Apply vessel entry procedures including use of forced supplied air.
Recommended:
Drain down system prior to equipment break-in or maintenance. Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.

Contributing exposure scenario 12

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Store substance within a closed system. Avoid dip sampling.
Recommended:
Transfer via enclosed lines. Locate bulk storage outdoors.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 3: Formulation & (re)packing of substances and mixtures

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses
SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Application

Activities and processes: Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Formulation & (re)packing of substances and mixtures (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC3: Formulation in materials

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (no sampling)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00

Dermal: 0.00

Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (with sample collection); enclosed equipment

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 4

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (with sample collection); enclosed equipment

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 5

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

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Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
General exposures, batch process (open); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Potential hazards: Aerosols (moderate dusty solids)
Inhalative: 5 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Potential hazards: Aerosols (moderate dusty solids)
Inhalative: 0.50
Dermal: 0.01
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Batch processes at elevated temperatures (worker)

List of use descriptors

Process categories [PROC]:
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Batch processes at elevated temperatures; with sample collection; with local exhaust ventilation

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Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Formulate in enclosed or ventilated mixing vessels. Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 7

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Process sampling; with sample collection; enclosed equipment

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.01
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid dip sampling.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Laboratory activities

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05

Dermal: 0.00

Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Handle in a fume cupboard or under extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling. Clear spills immediately. Remotely vent displaced vapours.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Mixing operations (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mixing operations (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Potential hazards: Aerosols
Inhalative: 5 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Potential hazards: Aerosols
Inhalative: 0.50
Dermal: 0.02
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Transfer from/pouring from containers. Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Transfer from/pouring from containers. Manual; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.02

Combined for all exposure routes: 0.27

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container. Avoid spillage when withdrawing pump.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Production of preparations or articles by tabletting, compression, extrusion, pelletisation (worker)

List of use descriptors

Process categories [PROC]:
PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Production of preparations or articles by tabletting, compression, extrusion, pelletisation; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Handle substance within a predominantly closed system provided with extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Drum and small package filling (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum and small package filling; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Put lids on containers immediately after use.
Recommended: Fill containers/cans at dedicated fill points supplied with local extract ventilation. Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Cleaning work and maintenance. Recommended: With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.02

Combined for all exposure routes: 0.27

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Apply vessel entry procedures including use of forced supplied air.

Recommended: Drain down and flush system prior to equipment break-in or maintenance.

Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 16

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage; outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system. Avoid dip sampling.
Recommended: Transfer via enclosed lines. Locate bulk storage outdoors.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 4: Uses in coatings

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Uses in coatings (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
General exposures

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
General exposures (with sample collection); use in contained systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Film formation - force drying (50-100°C). Stoving (>100°C). UV/EB radiation curing (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Film formation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.20
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Mixing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Film formation - air drying (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Film formation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Avoid manual contact with wet work pieces.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Preparation of material for application (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Mixing operations (open systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Avoid manual contact with wet work pieces.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Spraying (automatic/robotic) (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Spraying (automatic/robotic); With local exhaust ventilation, efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.29

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Spraying; Dilution ventilation effectiveness 70 %

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 75 ppm
Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.4
Dermal: 0.00
Combined for all exposure routes: 0.42

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Contributing exposure scenario 10

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Material transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Material transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Roller, spreader, flow application (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Roller, spreader, flow application

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.28

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Dipping, immersion and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Dipping, immersion and pouring

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.69 mg/kg/d (LEV reduction factor: 0.05)

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid manual contact with wet work pieces.
Recommended: Provide extract ventilation to points where emissions occur. Clear up spills immediately and dispose of waste safely.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Laboratory activities

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.0
Dermal: 0.0
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid manual contact with wet work pieces.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Material transfers; drum/batch transfers; transfer from/pouring from containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to material transfer points and other openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 16

Production of preparations or articles by tabletting, compression, extrusion, pelletisation (worker)

List of use descriptors

Process categories [PROC]:

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 5: Uses in coatings

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Uses in coatings (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures (closed systems); Use in contained systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Preparation of material for application (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
preparation of material for application

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Clear up spills immediately and dispose of waste safely.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Film formation - air drying; outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Film formation; outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Avoid manual contact with wet work pieces.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Film formation - air drying; indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Film formation; indoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid manual contact with wet work pieces.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Preparation of material for application; indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Preparation of material for application; indoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Preparation of material for application; outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Preparation of material for application; outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 10

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Material transfers; drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Material transfers; drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to material transfer points and other openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Roller, spreader, flow application; outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Roller, spreader, flow application; outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.00
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Roller, spreader, flow application; indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Roller, spreader, flow application

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.00
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Limit the substance content in the product to 50 %. Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Contributing exposure scenario 14

Manual spraying; indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Manual spraying, indoor; With local exhaust ventilation, efficiency of 80 %

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Local exhaust ventilation - efficiency of at least [%]: 80)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.1
Combined for all exposure routes: 0.61

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Carry out in a vented booth provided with laminar airflow.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Manual spraying; outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Manual spraying, outdoor; Dilution ventilation effectiveness [%]: 70

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm (Dilution ventilation effectiveness 70 %)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.7
Dermal: 0.1
Combined for all exposure routes: 0.86

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Contributing exposure scenario 16

Dipping, immersion and pouring; indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Dipping, immersion and pouring, indoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear up spills immediately and dispose of waste safely.
Recommended: Avoid manual contact with wet work pieces. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 17

Dipping, immersion and pouring; outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Dipping, immersion and pouring, outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear up spills immediately and dispose of waste safely.
Recommended: Avoid manual contact with wet work pieces. Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Wear suitable gloves tested to EN374.

Contributing exposure scenario 18

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics:

Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Laboratory activities

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.0
Dermal: 0.0
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 19

Hand application - finger paints, pastels, adhesives; indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC19: Hand-mixing with intimate contact and only PPE available

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Hand application - finger paints, pastels, adhesives; indoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 141.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.2
Combined for all exposure routes: 0.65

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Ensure doors and windows are opened. Or: TIER-2 assessment: risk characterisation (dermal)

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Contributing exposure scenario 20

Hand application - finger paints, pastels, adhesives; outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC19: Hand-mixing with intimate contact and only PPE available

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

< 4 hours (recommended)

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Hand application - finger paints, pastels, adhesives; outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 141.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.2
Combined for all exposure routes: 0.65

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

recommended: Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours. Or: Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 6: Uses in coatings

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories:
PC1: Adhesives, sealants
PC4: Anti-freeze and de-icing products
PC8: Biocidal product
PC9: Coatings and paints, fillers, putties, thinners
PC15: Non-metal surface treatment products
PC18: Ink and toners
PC23: Leather treatment products
PC24: Lubricants, greases, release products
PC31: Polishes and wax blends
PC34: Textile dyes and impregnating products

Application

Activities and processes: Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %
Duration and frequency of use: Covers use up to 1 per day. Covers exposure up to 6 h per event..
Human factors not influenced by risk management: Covers skin contact area up to 857.5 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; Covers use in room size of 20 m^3; Covers use under typical household ventilation.
For each use event, covers use amounts up to 13,800 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Uses in coatings (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: No exposure assessment presented for the environment.

Contributing exposure scenario 2

Glues, hobby use (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 35.73 cm²; For each use event, covers use amounts up to 9 g. Covers use up to 365 days per year; covers use up to 1 per day; covers exposure up to 4 hours; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 2.98
oral: 0.00
inhalative: 14.208

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.16
combined for all exposure routes: 0.17

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Glues DIY-use (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 110.00 cm²; For each use event, covers use amounts up to 6,390 g. Covers use up to 1 day per year; covers use up to 1 per day; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.02
oral: 0.00
inhalative: 29.135

RCR frequency of use: yearly
dermal: 0.03
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.33

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 4

Glue from spray (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:
Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 35.73 cm^2; For each use event, covers use amounts up to 85.05 g. Covers use up to 6 days per year; covers use up to 1 per day; covers exposure up to 4 hours; covers use in room size of 20 m^3

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 0.05
oral: 0.00
inhalative: 2.21

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.02
combined for all exposure routes: 0.02

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 5

Sealants (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:
Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 35.73 cm²; For each use event, covers use amounts up to 75 g. Covers use up to 365 days per year; covers use up to 1 per day; covers exposure up to 1 hours; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 2.98
oral: 0.00
inhalative: 58.748

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.66
combined for all exposure routes: 0.67

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 6

Washing car window (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.00 cm²; For each use event, covers use amounts up to 0.5 g. Covers use up to 365 days per year; covers exposure up to 1 hours; Covers exposure up to 0.2 h (12 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.005

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 7

Pouring into radiator (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.00 cm^2; For each use event, covers use amounts up to 2,000 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m^3) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 35.67
oral: 0.00
inhalative: 9.036

RCR frequency of use: yearly
dermal: 0.11
oral: 0.00
inhalative: 0.10
combined for all exposure routes: 0.21

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 8

Lock de-icer (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 214.4 cm²; For each use event, covers use amounts up to 4 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.25 h (15 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 17.87
oral: 0.00
inhalative: 0.511

RCR frequency of use: yearly
dermal: 0.06
oral: 0.01
inhalative: 0.06
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 9

Laundry and dish washing products (Consumer)

List of use descriptors

Product (Sub-)Categories: PC8: Biocidal product

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 15 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.5 h (30 minutes) per event.; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.71
oral: 0.00
inhalative: 6.750

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.08
combined for all exposure routes: 0.08

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 10

Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC8: Biocidal product

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.50 cm^2; For each use event, covers use amounts up to 27 g. Covers use up to 128 days per year; covers use up to 1 per day; Covers exposure up to 0.33 h (20 minutes) per event. Covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 25.01
oral: 0.00
inhalative: 2.947

RCR frequency of use: yearly
dermal: 0.08
oral: 0.00
inhalative: 0.03
combined for all exposure routes: 0.11

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 11

Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC8: Biocidal product

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.00 cm²; For each use event, covers use amounts up to 35 g. Covers use up to 128 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 12.48
oral: 0.00
inhalative: 2.024

RCR frequency of use: yearly
dermal: 0.04
oral: 0.00
inhalative: 0.02
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 12

Waterborne latex wall paint (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.75 cm²; For each use event, covers use amounts up to 2760 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.39
oral: 0.00
inhalative: 38.628

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.43
combined for all exposure routes: 0.44

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 13

Solvent rich, high solid, water borne paint (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 27.5 %; covers skin contact area up to 428.75 cm^2; For each use event, covers use amounts up to 744 g. Covers use up to 6 days per year; covers use up to 1 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event. Covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.31
oral: 0.00
inhalative: 8.330

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.09
combined for all exposure routes: 0.09

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 14

Aerosol spray can (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; For each use event, covers use amounts up to 215 g. Covers use up to 2 days per year; covers use up to 1 per day; Covers exposure up to 0.3 h (18 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.171

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.0019

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 15

Removers (paint-, glue-, wall paper-, sealant-remover) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 491 g. Covers use up to 3 days per year; covers use up to 1 per day; Covers exposure up to 2 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.59
oral: 0.00
inhalative: 4.896

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.06
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 16

Fillers and putty (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9b: Fillers, putties, plasters, modelling clay

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 35.7 cm^2; For each use event, covers use amounts up to 85 g. Covers use up to 12 days per year; covers use up to 12 per day; Covers exposure up to 4 h per event. Covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.10
oral: 0.00
inhalative: 4.411

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.05
combined for all exposure routes: 0.05

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 17

Plasters and floor equalizers (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9b: Fillers, putties, plasters, modelling clay

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 2 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 13,800 g. Covers use up to 12 days per year; covers use up to 1 per day; Covers exposure up to 2 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.09
oral: 0.00
inhalative: 22.017

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.25
combined for all exposure routes: 0.25

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 18

Modelling clay (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9b: Fillers, putties, plasters, modelling clay

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 254.40 cm²; Covers use up to 365 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 2.54
oral: 20.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.01
oral: 0.77
inhalative: 0.00
combined for all exposure routes: 0.78

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 19

Finger paints (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9c: Finger paints

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:
Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 254.40 cm²; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 127.20
oral: 67.50
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.12
oral: 0.78
inhalative: -
combined for all exposure routes: 0.90

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
Avoid using at a product concentration greater than 15 %.

Contributing exposure scenario 20

Waterborne latex wall paint (Consumer)

List of use descriptors

Product (Sub-)Categories: PC15: Non-metal surface treatment products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:
Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 428.75 cm²; For each use event, covers use amounts up to 2,760 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.16
oral: 0.00
inhalative: 15.451

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.17
combined for all exposure routes: 0.17

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 21

Solvent rich, high solid, water borne paint (Consumer)

List of use descriptors

Product (Sub-)Categories: PC15: Non-metal surface treatment products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 28 %; covers skin contact area up to 428.75 cm²; For each use event, covers use amounts up to 744 g. Covers use up to 6 days per year; covers use up to 1 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.31
oral: 0.00
inhalative: 8.330

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.09
combined for all exposure routes: 0.09

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 22

Aerosol spray can (Consumer)

List of use descriptors

Product (Sub-)Categories: PC15: Non-metal surface treatment products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; For each use event, covers use amounts up to 215 g. Covers use up to 2 days per year; covers use up to 1 per day; Covers exposure up to 0.3 h (18 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.171

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 23

Removers (paint-, glue-, wall paper-, sealant-remover) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC15: Non-metal surface treatment products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

8^[SofernNichtAndersK], [UmfasstHautKontaktFlächeBisK [E2Leer "857.5" [cm2]]])

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 491 g. Covers use up to 3 days per year; covers use up to 1 per day; Covers exposure up to 2 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.59
oral: 0.00
inhalative: 4.896

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.06
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 24

Ink and toners (Consumer)

List of use descriptors

Product (Sub-)Categories: PC18: Ink and toners

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 71.40 cm²; For each use event, covers use amounts up to 40 g. Covers use up to 365 days per year; covers use up to 365 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 5.95
oral: 0.00
inhalative: 50.893

RCR frequency of use: yearly
dermal: 0.02
oral: 0.00
inhalative: 0.57
combined for all exposure routes: 0.59

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 25

Polishes, wax/cream (floor, furniture, shoes) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC23: Leather treatment products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 430.00 cm^2; For each use event, covers use amounts up to 56 g. Covers use up to 29 days per year; covers use up to 1 per day; Covers exposure up to 1.23 h (1 h 14 minutes) per event. Covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 2.87
oral: 0.00
inhalative: 4.067

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.05
combined for all exposure routes: 0.05

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 26

Polishes, spray (furniture, shoes) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC23: Leather treatment products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 430.00 cm²; For each use event, covers use amounts up to 56 g. Covers use up to 8 days per year; covers use up to 1 per day; Covers exposure up to 0.33 h (20 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.79
oral: 0.00
inhalative: 0.386

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 27

Liquids (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 2,200 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.85
oral: 0.00
inhalative: 0.044

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 28

Pastes (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 34 g. Covers use up to 10 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.43
oral: 0.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 29

Sprays (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.75 cm²; For each use event, covers use amounts up to 73 g. Covers use up to 6 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.59
oral: 0.00
inhalative: 0.198

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 30

Polishes, wax/cream (floor, furniture, shoes) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC31: Polishes and wax blends

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 430.00 cm²; For each use event, covers use amounts up to 142 g. Covers use up to 29 days per year; covers use up to 1 per day; Covers exposure up to 1.23 h (1 h 14 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 2.87
oral: 0.00
inhalative: 10.312

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.12
combined for all exposure routes: 0.12

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 31

Polishes, spray (furniture, shoes) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC31: Polishes and wax blends

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 430.00 cm^2; For each use event, covers use amounts up to 35 g. Covers use up to 8 days per year; covers use up to 1 per day; Covers exposure up to 0.33 h (20 minutes) per event. Covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.79
oral: 0.00
inhalative: 0.241

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 32

Textile dyes, finishing and impregnating products; including bleaches and other processing aids (Consumer)

List of use descriptors

Product (Sub-)Categories: PC34: Textile dyes and impregnating products

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:

Unless otherwise stated, covers percentage substance in the product up to 100 %.

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 115 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 1 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.29
oral: 0.00
inhalative: 36.032

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.40
combined for all exposure routes: 0.41

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 7: Use in cleaning agents

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand) related equipment cleaning and maintenance.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in cleaning agents (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Automated process with (semi) closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Use in contained systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.0
Dermal: 0.0
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Contributing exposure scenario 4

Automated process with (semi) closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Drum/batch transfers, use in contained systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Contributing exposure scenario 5

Application of cleaning products in closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

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Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Application of cleaning products in closed systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.0
Dermal: 0.0
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Contributing exposure scenario 6

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Use in contained batch processes (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Use in contained batch processes

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Degreasing small objects in cleaning station (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Degreasing small objects in cleaning station

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Cleaning with low-pressure washers (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Cleaning with low-pressure washers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.28

Risk management measures

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 10

Cleaning with high pressure washers (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Cleaning with high pressure washers; Dilution ventilation effectiveness [%]: 70

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 75 ppm (Dilution ventilation effectiveness 70 %)
Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.4
Dermal: 0.0
Combined for all exposure routes: 0.42

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Or: Avoid carrying out operation for more than 4 hours. Or: Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Contributing exposure scenario 11

Manual. Cleaning, surfaces, no spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

< 4 hours (recommended)

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Manual. Cleaning, surfaces, no spraying

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.26

Risk management measures

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 8: Use in cleaning agents

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in cleaning agents (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.26

Risk management measures

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Automated process with (semi) closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Use in contained systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Contributing exposure scenario 4

Automated process with (semi) closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Drum/batch transfers, use in contained systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Contributing exposure scenario 5

Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products); Application of cleaning products in closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

---

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Surfaces; Cleaning; Dipping, immersion and pouring

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Cleaning with low-pressure washers (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Rolling, Brushing; No spraying

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 9

Cleaning with high pressure washers; Spraying; Indoor (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm (Dilution ventilation effectiveness: 70 %)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.7
Dermal: 0.1
Combined for all exposure routes: 0.86

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Recommended: Limit the substance content in the product to 5 %.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 10

Cleaning with high pressure washers; Spraying; Outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 35 ppm (Dilution ventilation effectiveness: 30 %; TRA Concentration factor < 1 %)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.1
Combined for all exposure routes: 0.29

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Recommended: Limit the substance content in the product to < 1 %.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 11

Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa

Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Assumes use at not more than 20 °C above ambient temperature.

Surfaces; Cleaning; Spraying

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5

Dermal: 0.0

Combined for all exposure routes: 0.52

Risk management measures

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Ad hoc manual application via trigger sprays, dipping, etc (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Rolling, Brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Limit the substance content in the product to 25 %. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 13

Ad hoc manual application via trigger sprays, dipping, etc (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Rolling, Brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.0
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Limit the substance content in the product to 25 %.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Application of cleaning products in closed systems; Outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.25

Risk management measures

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Cleaning of medical devices (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

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Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Cleaning of medical devices

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.25

Risk management measures

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 9: Use in cleaning agents

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories:
PC3: Air care products
PC4: Anti-freeze and de-icing products
PC8: Biocidal product
PC9: Coatings and paints, fillers, putties, thinners
PC24: Lubricants, greases, release products
PC35: Washing and cleaning products
PC38: Welding and soldering products, flux products

Application

Activities and processes: Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Duration and frequency of use: Covers use up to 1 per day. Covers exposure up to 4 h per event.
Human factors not influenced by risk management: Covers skin contact area up to 857.5 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; covers use in room size of 20 m^3; covers use under typical household ventilation. For each use event, covers use amounts up to 13,800 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in cleaning agents (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Air care, instant action (aerosol sprays) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC3: Air care products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428 cm²; For each use event, covers use amounts up to 0.1 g. Covers use up to 365 days per year; covers use up to 4 per day; Covers exposure up to 0.25 h (15 minutes) per event.; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 142.67
oral: 0.00
inhalative: 0.097

RCR frequency of use: yearly
dermal: 0.45
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.45

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Air care, instant action (aerosol sprays); excipient only (Consumer)

List of use descriptors

Product (Sub-)Categories: PC3: Air care products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428 cm²; For each use event, covers use amounts up to 0.1 g. Covers use up to 365 days per year; covers use up to 4 per day; Covers exposure up to 0.25 h (15 minutes) per event.; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 142.67
oral: 0.00
inhalative: 0.097

RCR frequency of use: yearly
dermal: 0.45
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.45

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 4

Air care, continuous action (solid and liquid) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC3: Air care products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 35.7 cm²; For each use event, covers use amounts up to 0.48 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 8 h per event. Covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.826

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.01
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 5

Air care, continuous action (solid and liquid); excipient only (Consumer)

List of use descriptors

Product (Sub-)Categories: PC3: Air care products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 35.7 cm²; For each use event, covers use amounts up to 0.48 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 8 h per event. Covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.826

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.01
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 6

Washing car window (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; For each use event, covers use amounts up to 0.5 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.02 h (1 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.005

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 7

Pouring into radiator (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428 cm²; For each use event, covers use amounts up to 2000 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 35.67
oral: 0.00
inhalative: 9.036

RCR frequency of use: yearly
dermal: 0.11
oral: 0.00
inhalative: 0.10
combined for all exposure routes: 0.21

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 8

Lock de-icer (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 214.4 cm²; For each use event, covers use amounts up to 4 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.25 h (15 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 17.87
oral: 0.00
inhalative: 0.51

RCR frequency of use: yearly
dermal: 0.06
oral: 0.00
inhalative: 0.01
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 9

Laundry and dish washing products (Consumer)

List of use descriptors

Product (Sub-)Categories: PC8: Biocidal product

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.5 cm^2; For each use event, covers use amounts up to 15 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.50 h (30 minutes) per event.; covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.71
oral: 0.00
inhalative: 6.75

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.08
combined for all exposure routes: 0.08

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 10

Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC8: Biocidal product

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.5 cm²; For each use event, covers use amounts up to 27 g. Covers use up to 128 days per year; covers use up to 1 per day; Covers exposure up to 0.33 h (20 minutes) per event.; covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 25.01
oral: 0.00
inhalative: 2.947

RCR frequency of use: yearly
dermal: 0.08
oral: 0.00
inhalative: 0.03
combined for all exposure routes: 0.11

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 11

Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC8: Biocidal product

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.00 cm²; For each use event, covers use amounts up to 15 g. Covers use up to 128 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event.; covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 12.48
oral: 0.00
inhalative: 2.024

RCR frequency of use: yearly
dermal: 0.04
oral: 0.00
inhalative: 0.02
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 12

Waterborne latex wall paint (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.75 cm^2; For each use event, covers use amounts up to 2760 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event.; covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.039
oral: 0.00
inhalative: 38.628

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.43
combined for all exposure routes: 0.44

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 13

Solvent rich, high solid, water borne paint (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.75 cm²; For each use event, covers use amounts up to 744 g. Covers use up to 6 days per year; covers use up to 1 per day; Covers exposure up to 2.2 h (2 h 12 minutes) per event.; covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.57
oral: 0.00
inhalative: 15.146

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.17
combined for all exposure routes: 0.17

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 14

Aerosol spray can (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; For each use event, covers use amounts up to 215 g. Covers use up to 2 days per year; covers use up to 1 per day; Covers exposure up to 0.3 h (18 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.171

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.0019

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 15

Removers (paint-, glue-, wall paper-, sealant-remover) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9a: Coatings and paints, thinners, paint removers

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.5 cm^2; For each use event, covers use amounts up to 491 g. Covers use up to 3 days per year; covers use up to 1 per day; Covers exposure up to 2.0 h per event. Covers use in room size of 20 m^3.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 0.59
oral: 0.00
inhalative: 4.896

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.06
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 16

Fillers and putty (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9b: Fillers, putties, plasters, modelling clay

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 35.73 cm²; For each use event, covers use amounts up to 85 g. Covers use up to 12 days per year; covers use up to 12 per day; Covers exposure up to 4 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.04
oral: 0.00
inhalative: 1.765

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.02
combined for all exposure routes: 0.02

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 17

Plasters and floor equalizers (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9b: Fillers, putties, plasters, modelling clay

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 2 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 13,800 g. Covers use up to 12 days per year; covers use up to 1 per day; Covers exposure up to 2 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.09
oral: 0.00
inhalative: 22.017

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.25
combined for all exposure routes: 0.25

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 18

Modelling clay (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9b: Fillers, putties, plasters, modelling clay

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 20 %; covers skin contact area up to 254.40 cm²; Covers use up to 365 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 2.54
oral: 20.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.01
oral: 0.77
inhalative: 0.00
combined for all exposure routes: 0.78

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 19

Finger paints (Consumer)

List of use descriptors

Product (Sub-)Categories: PC9c: Finger paints

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 254.40 cm²; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 127.20
oral: 67.50
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.12
oral: 0.78
inhalative: -
combined for all exposure routes: 0.90

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

Avoid using at a product concentration greater than 15 %.

Contributing exposure scenario 20

Liquids (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 2,200 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.85
oral: 0.00
inhalative: 0.044

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 21

Pastes (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 20 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 34 g. Covers use up to 10 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 0.43
oral: 0.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 22

Sprays (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.75 cm²; For each use event, covers use amounts up to 73 g. Covers use up to 6 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.59
oral: 0.00
inhalative: 0.198

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 23

Laundry and dish washing products (Consumer)

List of use descriptors

Product (Sub-)Categories: PC35: Washing and cleaning products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 15 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.71
oral: 0.00
inhalative: 6.75

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 24

Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC35: Washing and cleaning products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.50 cm²; For each use event, covers use amounts up to 27 g. Covers use up to 128 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 25.01
oral: 0.00
inhalative: 2.947

RCR frequency of use: yearly
dermal: 0.08
oral: 0.00
inhalative: 0.03
combined for all exposure routes: 0.11

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 25

Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC35: Washing and cleaning products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.00 cm²; For each use event, covers use amounts up to 35 g. Covers use up to 128 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 12.48
oral: 0.00
inhalative: 2.024

RCR frequency of use: yearly
dermal: 0.04
oral: 0.00
inhalative: 0.02
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 26

Welding and soldering products, flux products; TRA not available (Consumer)

List of use descriptors

Product (Sub-)Categories: PC38: Welding and soldering products, flux products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; For each use event, covers use amounts up to 12 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 1 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 9.40

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.11
combined for all exposure routes: 0.11

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 10: Oil field well drilling and production operations

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Oil field well drilling and production operations (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers from tote tanks and supply vessels (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers from tote tanks and supply vessels; Outdoor; Respiratory protective device (RPE)

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Handle substance within a closed system.

Contributing exposure scenario 3

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers; Respiratory protective device (RPE)

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Drilling mud (re-)formulation (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drilling mud (re-)formulation; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 5

Drill floor operations (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drill floor operations; Outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Operation of solids filtering equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Operation of solids filtering equipment; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Vapours inhalative: 5 ppm (Local exhaust ventilation - efficiency of at least [%]: 95%)
Aerosols inhalative: 2.5 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Vapours
Inhalative: 0.50
Dermal: 0.01
Combined for all exposure routes: 0.51

Aerosols
Inhalative: 0.01
Dermal: 0.00
Combined for all exposure routes: 0.01

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended:
Vapours: Provide extract ventilation to points where emissions occur.
Aerosols: Formulate in enclosed or ventilated mixing vessels. Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Vapours:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Cleaning of solids filtering equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Cleaning of solids filtering equipment; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Avoid dip sampling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Treatment and disposal of filtered solids (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics:
Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Treatment and disposal of filtered solids; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Handle in a fume cupboard or under extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Process sampling (worker)

List of use descriptors

Process categories [PROC]:
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics:
Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Process sampling; Exposure duration: short-term

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling. Clear spills immediately. Remotely vent displaced vapours.

Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00

Dermal: 0.00

Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Pouring from small containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Pouring from small containers; Exposure duration: short-term

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 2.74 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.50
Dermal: 0.00
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems); Outdoor

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment cleaning and maintenance; Exposure duration: short-term

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm

Dermal: 2.74 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05

Dermal: 0.00

Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 11: Lubricants

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Lubricants (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC7: Use of functional fluid at industrial site

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (no sampling)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (no sampling)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 4

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

General exposures (open systems). Aerosols (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (open systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm

Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.50

Dermal: 0.01

Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.

Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers; with local exhaust ventilation (factor 0.3)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling. Clear spills immediately. Remotely vent displaced vapours.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers; Recommended: With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Transfer via enclosed lines. Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Transfer via enclosed lines. Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Initial factory fill of equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Initial factory fill of equipment; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Operation and lubrication of high energy open equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Operation and lubrication of high energy open equipment; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Operation and lubrication of high energy open equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Operation and lubrication of high energy open equipment (aerosols); With local exhaust ventilation efficiency of 80%.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 4 ppm (Local exhaust ventilation - efficiency of at least [%]: 80)

Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.40

Dermal: 0.00

Combined for all exposure routes: 0.40

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to points where emissions occur. (Efficiency of 80%). Restrict area of openings to equipment.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Operation and lubrication of high energy open equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC18: Greasing at high energy conditions

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Operation and lubrication of high energy open equipment; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Operation and lubrication of high energy open equipment (worker)

List of use descriptors

Process categories [PROC]:

PROC18: Greasing at high energy conditions

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Operation and lubrication of high energy open equipment (aerosols); With local exhaust ventilation efficiency of 80%.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 4 ppm (Local exhaust ventilation - efficiency of at least [%]: 80)
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.40
Dermal: 0.00
Combined for all exposure routes: 0.40

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to points where emissions occur. (Efficiency of 80%). Restrict area of openings to equipment.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Manual Roller application or brushing; With local exhaust ventilation (factor 0.3)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.03

Combined for all exposure routes: 0.28

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Treatment by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Treatment by dipping and pouring

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d (Reduction: 50 %)

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Restrict area of openings to equipment. (Reduction 50 %). Allow time for product to drain from workpiece. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 16

Spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying With local exhaust ventilation, efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 12.5 ppm
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.06
Dermal: 0.00
Combined for all exposure routes: 0.06

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves (tested to EN374), coverall and eye protection.
Wear a respirator conforming to EN140 with Type A/P2 filter or better (efficiency of 95%).

Contributing exposure scenario 17

Spraying (aerosols) (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying (aerosols); With local exhaust ventilation, efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 1 ppm

Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10

Dermal: 0.00

Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves (tested to EN374), coverall and eye protection.

Wear a respirator conforming to EN140 with Type A/P2 filter or better (efficiency of 95%).

Contributing exposure scenario 18

Maintenance (of larger plant items) and machine set up (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Maintenance (of larger plant items) and machine set up; Provide enhanced general ventilation by mechanical means (factor 0.3)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling. Remotely vent displaced vapours.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 19

Maintenance (of larger plant items) and machine set up (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Maintenance (of larger plant items) and machine set up; high volatility

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.74
Dermal: 0.00
Combined for all exposure routes: 0.74

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely. Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 20

Maintenance of small items (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Maintenance of small items; Provide enhanced general ventilation by mechanical means (factor 0.3)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid manual contact with wet work pieces. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 21

Remanufacture of reject articles (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Remanufacture of reject articles; Provide enhanced general ventilation by mechanical means (factor 0.3)

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Provide enhanced general ventilation by mechanical means. Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 22

Storage (worker)

List of use descriptors

Process categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage; Outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system. Avoid dip sampling.
Recommended: Transfer via enclosed lines.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 12: Lubricants

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Lubricants (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures (with sample collection)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 4

Operation of equipment containing engine oils and similar (worker)

List of use descriptors

Process categories [PROC]:

PROC20: Use of functional fluids in small devices

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No other specific measures identified.
Recommended: Handle substance within a predominantly closed system provided with extract ventilation.

Contributing exposure scenario 5

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures (open); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
General exposures (open, aerosols); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.50
Dermal: 0.00
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

1 - 4 h (factor 0.6)

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Bulk transfers; with local exhaust ventilation (factor 0.7)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Filling / preparation of equipment from drums or containers - Dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Bulk transfers; Recommended: With local exhaust ventilation, efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Filling / preparation of equipment from drums or containers - Non-dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

15 min - 1 h (factor 0.2)

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means. Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Operation and lubrication of high energy open equipment (indoor) (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

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Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
indoor; with local exhaust ventilation, efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 40 ppm (LEV efficiency of 80%)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.20
Dermal: 0.00
Combined for all exposure routes: 0.20

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Operation and lubrication of high energy open equipment (indoor) (worker)

List of use descriptors

Process categories [PROC]:

PROC18: Greasing at high energy conditions

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
With local exhaust ventilation, efficiency of 70%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 60 ppm (LEV efficiency of 70%)
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.30
Dermal: 0.00
Combined for all exposure routes: 0.30

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Operation and lubrication of high energy open equipment (indoor; aerosols) (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process
PROC18: Greasing at high energy conditions

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Aerosols; with local exhaust ventilation, efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm (LEV efficiency of 90%)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.50
Dermal: 0.00
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Operation and lubrication of high energy open equipment (outdoor) (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Without local exhaust ventilation; outdoor (efficiency of 30%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 140 ppm (outdoor factor (0.7); exposure duration 1-4 h (factor 0.6); TRA Concentration 5% (factor 0.2))
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.69
Dermal: 0.00
Combined for all exposure routes: 0.69

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Ensure operation is undertaken outdoors.
Recommended: Avoid carrying out operation for more than 4 hours. Limit the substance content in the product to 5 %.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Operation and lubrication of high energy open equipment (outdoor aerosols) (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Without local exhaust ventilation; outdoor, aerosols (efficiency of 30%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 4.2 ppm (outdoor factor (0.7); exposure duration 1-4 h (factor 0.6); TRA Concentration 5% (factor 0.2))
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.42
Dermal: 0.03
Combined for all exposure routes: 0.43

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Ensure operation is undertaken outdoors.
Recommended: Avoid carrying out operation for more than 4 hours. Limit the substance content in the product to 5 %.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Maintenance (of larger plant items) and machine set up (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics:

Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Maintenance and machine set up; With local exhaust ventilation (factor 0.3)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: GV factor 0.3)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide enhanced general ventilation by mechanical means. Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 16

Maintenance (of larger plant items) and machine set up (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Maintenance and machine set up; elevated temperature; With local exhaust ventilation (efficiency of 90%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely.

Recommended: Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 17

Maintenance of small items (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa

Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Assumes use at not more than 20 °C above ambient temperature.

Maintenance and machine set up; elevated temperature;

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Respiratory protective device factor (0.1);

Recommended: Exposure duration 1 - 4 h factor (0.6); TRA Concentration 25%)

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Contributing exposure scenario 18

Engine lubricant service (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Engine lubricant service

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: Provide enhanced GV factor (0.3); exposure duration 1 - 4 h factor (0.6); general ventilation factor (0.7))
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Use drum pumps or carefully pour from container. Avoid carrying out operation for more than 4h.

Contributing exposure scenario 19

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.03
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 20

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm (Recommended: Provide enhanced GV factor (0.3);
exposure duration 1 - 4 h factor (0.6)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.025
Dermal: 0.03
Combined for all exposure routes: 0.06

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide enhanced general ventilation by mechanical means. Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 21

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm (Recommended: Respiratory protective device, APF 10 factor (0.1)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.02
Dermal: 0.03
Combined for all exposure routes: 0.06

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: If technical measures not practical: Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 22

Spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 min - 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Spraying; With local exhaust ventilation (efficiency of 80%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm LEV factor (0.2); Recommended: exposure duration 15 min - 1 h factor (0.2)
Inhalative: 4 ppm LEV factor (0.2)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Inhalative: 0.40
Dermal: 0.00
Combined for all exposure routes: 0.40

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Recommended: Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 23

Spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 min - 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Spraying

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (RPE APE10 factor (0.1); Recommended: exposure duration 15 min - 1h factor (0.2); DNEL 50 ppm: 1 - 4 h factor (0.6))
Inhalative: 2 ppm (RPE APE10 factor (0.1))
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Inhalative: 0.2
Dermal: 0.12
Combined for all exposure routes: 0.32

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

If technical measures not practical:
Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Recommended: Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Contributing exposure scenario 24

Treatment by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics:

Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Treatment by dipping and pouring; With local exhaust ventilation (efficiency of 90%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 1 ppm (LEV efficiency of 90%; RPE APF 10 factor (0.1)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.00
Combined for all exposure routes: 0.1

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Allow time for product to drain from workpiece.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 25

Treatment by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Treatment by dipping and pouring; Without local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 3 ppm (RPE APF 10 factor (0.1); Enhanced GV factor (0.3)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.3
Dermal: 0.02
Combined for all exposure routes: 0.32

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Allow time for product to drain from workpiece.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Contributing exposure scenario 26

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Storage; Outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 13: Lubricants

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories:
PC1: Adhesives, sealants
PC24: Lubricants, greases, release products
PC31: Polishes and wax blends

Application

Activities and processes: Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Duration and frequency of use: Covers use up to 1 per day. Covers exposure up to 6 h per event.
Human factors not influenced by risk management: Covers skin contact area up to 468 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; Covers use in room size of 20 m^3; Covers use under typical household ventilation; For each use event, covers use amounts up to 6,390 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Lubricants (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Glues, hobby use (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 30 %; covers skin contact area up to 35.73 cm^2; For each use event, covers use amounts up to 9 g. Covers use up to 365 days per year; covers use up to 1 per day; covers exposure up to 4 hours; covers use in room size of 20 m^3

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 1.79
oral: 0.00
inhalative: 8.525

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.10
combined for all exposure routes: 0.10

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Glues DIY-use (carpet glue, tile glue, wood parquet glue) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 30 %; covers skin contact area up to 110.00 cm²; For each use event, covers use amounts up to 6,390 g. Covers use up to 1 day per year; covers use up to 1 per day; covers exposure up to 6 hours; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.01
oral: 0.00
inhalative: 17.481

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.20
combined for all exposure routes: 0.20

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 4

Glue from spray (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 30 %; covers skin contact area up to 35.73 cm²; For each use event, covers use amounts up to 85.05 g. Covers use up to 6 days per year; covers use up to 1 per day; covers exposure up to 4 hours; covers use in room size of 20 m³

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.03
oral: 0.00
inhalative: 1.324

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.01
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 5

Sealants (Consumer)

List of use descriptors

Product (Sub-)Categories: PC1: Adhesives, sealants

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 30 %; covers skin contact area up to 35.73 cm^2; For each use event, covers use amounts up to 75 g. Covers use up to 365 days per year; covers use up to 1 per day; covers exposure up to 1 hours; covers use in room size of 20 m^3

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 1.79
oral: 0.00
inhalative: 35.249

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.40
combined for all exposure routes: 0.40

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 6

Liquids (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 2,200 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.85
oral: 0.00
inhalative: 0.044

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 7

Pastes (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 34 g. Covers use up to 10 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.43
oral: 0.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 8

Sprays (Consumer)

List of use descriptors

Product (Sub-)Categories: PC24: Lubricants, greases, release products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 428.75 cm^2; For each use event, covers use amounts up to 73 g. Covers use up to 6 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m^3) under typical ventilation.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 0.59
oral: 0.00
inhalative: 0.198

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 9

Polishes, wax/cream (floor, furniture, shoes) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC31: Polishes and wax blends

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 430.00 cm²; For each use event, covers use amounts up to 142 g. Covers use up to 29 days per year; covers use up to 1 per day; Covers exposure up to 1.23 h (1 h 14 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 2.87
oral: 0.00
inhalative: 10.312

RCR frequency of use: yearly
dermal: 0.01
oral: 0.00
inhalative: 0.12
combined for all exposure routes: 0.12

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 10

Polishes, spray (furniture, shoes) (Consumer)

List of use descriptors

Product (Sub-)Categories: PC31: Polishes and wax blends

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 430.00 cm²; For each use event, covers use amounts up to 35 g. Covers use up to 8 days per year; covers use up to 1 per day; Covers exposure up to 0.33 h (20 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.79
oral: 0.00
inhalative: 0.241

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 14: Metal working fluids

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use in formulated MWFs (MWFs)/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Metal working fluids (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (no sampling)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 4

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.01
Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure material transfers are under containment or extract ventilation.
Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation (factor 0.3) or outdoor (DNEL 50 ppm)

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.

Recommended: Provide enhanced general ventilation by mechanical means. or Ensure operation is undertaken outdoors. Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 min - 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Process sampling

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: 15 min - 1 h factor (0.2))
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use dedicated equipment.
Recommended: Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Metal machining operations (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Metal machining operations; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Treatment by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Treatment by dipping and pouring

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation (factor 0.3))

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.02

Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Allow time for product to drain from workpiece. Automate activity where possible. Recommended: Provide enhanced general ventilation by mechanical means. Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying; With local exhaust ventilation, efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (LEV efficiency of 80%)
Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140 with Type A/P2 filter or better (efficiency of 80%).

Contributing exposure scenario 13

Spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying With local exhaust ventilation, efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 4 ppm (LEV efficiency of 80%)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.40
Dermal: 0.00
Combined for all exposure routes: 0.40

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Recommended: Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140 with Type A/P2 filter or better (efficiency of 95%).

Contributing exposure scenario 14

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation (factor 0.3))

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.03

Combined for all exposure routes: 0.28

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid splashing.

Recommended: Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Automated metal rolling/forming (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Automated metal rolling/forming; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Handle substance within a predominantly closed system provided with extract ventilation. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 16

Semi-automated metal rolling/forming (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Semi-automated metal rolling/forming; elevated temperature; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Automate activity where possible.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 17

Semi-automated metal rolling/forming (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Semi-automated metal rolling/forming; elevated temperature; With local exhaust ventilation (efficiency of 90%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 2 ppm

Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.20

Dermal: 0.00

Combined for all exposure routes: 0.20

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 18

Semi-automated metal rolling/forming (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Semi-automated metal rolling/forming; elevated temperature; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Automate activity where possible.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 19

Equipment cleaning and maintenance - Dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Equipment cleaning and maintenance - Dedicated facility

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation factor (0.3))
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Provide enhanced general ventilation by mechanical means. Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 20

Equipment cleaning and maintenance - Non-dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment cleaning and maintenance - Non-dedicated facility

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation factor (0.3))

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.02

Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Recommended: Provide enhanced general ventilation by mechanical means. Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 21

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.01
Dermal: 0.00
Combined for all exposure routes: 0.01

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.
Recommended: Transfer via enclosed lines. Avoid dip sampling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 15: Metal working fluids

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/reject articles, and disposal of waste oils.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Metal working fluids (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 4

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation (factor 0.3))
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 5

Filling / preparation of equipment from drums or containers. Dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Ensure material transfers are under containment or extract ventilation. (Recommended: LEV Efficiency of 80%).

Contributing exposure scenario 6

Filling / preparation of equipment from drums or containers. Dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Filling / preparation of equipment from drums or containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Use drum pumps or carefully pour from container. (Recommended: LEV Efficiency of 80%).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Filling / preparation of equipment from drums or containers. Non-dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 minutes - 1 hours

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers. Non-dedicated facility

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm (Recommended: Use duration 15 min - 1 h (factor 0.2))
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.02
Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 minutes - 1 hours

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Process sampling

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: Use duration 15 min - 1 h (factor 0.2))

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05

Dermal: 0.02

Combined for all exposure routes: 0.06

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Metal machining operations (worker)

List of use descriptors

Process categories [PROC]:

PROC17: Lubrication at high energy conditions and in partly open process

Operational conditions

Product characteristics: Liquid

Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Metal machining operations; With local exhaust ventilation, efficiency of 80%.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 40 ppm (LEV Efficiency of 80%)
Dermal: 27.43 mg/kg/d

Inhalative: 4 ppm (LEV Efficiency of 80%)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.20
Dermal: 0.03
Combined for all exposure routes: 0.23

Inhalative: 0.40
Dermal: 0.00
Combined for all exposure routes: 0.40

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide enhanced general ventilation by mechanical means. LEV Efficiency of 80%.
Recommended: Ensure operation is undertaken outdoors.

Contributing exposure scenario 10

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.03
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

1 - 4 hours

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: General ventilation (factor 0.3), Use duration 1 - 4 h (factor 0.6))

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.03

Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Manual Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Manual Roller application or brushing

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 100 ppm (Recommended: Respiratory protective device RPE APF 10, factor 0.1)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.49
Dermal: 0.03
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Spraying (worker)

List of use descriptors

Process categories [PROC]:
PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Spraying; With local exhaust ventilation, efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (LEV Efficiency of 80%. Recommended: Respiratory protective device RPE APF 10, factor 0.1)
Dermal: 107.14 mg/kg/d

Inhalative: 4 ppm (LEV Efficiency of 80%)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.12
Combined for all exposure routes: 0.61

Inhalative: 0.40
Dermal: 0.00
Combined for all exposure routes: 0.40

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide enhanced general ventilation by mechanical means.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Spraying (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying; Without local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: GV factor 0.3; Respiratory protective device RPE APF 10, factor 0.1)
Dermal: 107.14 mg/kg/d

Inhalative: 6 ppm (Recommended: GV factor 0.3; Respiratory protective device RPE APF 10, factor 0.1)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Inhalative: 0.60
Dermal: 0.12
Combined for all exposure routes: 0.72

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide enhanced general ventilation by mechanical means.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Treatment by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Treatment by dipping and pouring; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Allow time for product to drain from workpiece.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 16

Treatment by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Treatment by dipping and pouring; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: Respiratory protective device factor 0.1)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.02
Combined for all exposure routes: 0.06

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Allow time for product to drain from workpiece.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 17

Equipment cleaning and maintenance - Non-dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Equipment cleaning and maintenance - Non-dedicated facility

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 100 ppm (Recommended: Respiratory protective device RPE APF 10, factor 0.1)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 18

Equipment cleaning and maintenance - Dedicated facility (worker)

List of use descriptors

Process categories [PROC]:
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Equipment cleaning and maintenance - Dedicated facility

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: General ventilation factor 0.3)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 19

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 23.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 0.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 16: Blowing agents

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Use of blowing agents in manufacture of foam. Production of expandable polystyrene granulate.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Blowing agents (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

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Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Outdoor; Delivery of solvent to plant storage

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 150 ppm (Recommended: Outdoor factor 0.6; Use duration: short-term factor 0.1)
Dermal: 6.86 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.74
Dermal: 0.01
Combined for all exposure routes: 0.75

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Use vapour recovery units when necessary.. Clear transfer lines prior to de-coupling.
Recommended: Ensure adequate ventilation of the storage area.
Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Injection and mixing into molten polymer mass in extruder

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 0.01 ppm
Dermal: 0.34 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Contributing exposure scenario 4

Extrusion and expansion of polymer mass (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Foam production through polymer extrusion

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.00

Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Ensure the ventilation system is regularly maintained and tested.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Cutting and shaving (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Foam panel finishing (shaving/cutting)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Ensure the ventilation system is regularly maintained and tested.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Collection and re-processing of shavings, cuttings, etc (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Foam panel shavings recycling

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Ensure the ventilation system is regularly maintained and tested.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Product packaging (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Foam panel packing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.00

Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Finishing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Foam panel curing

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Material transfers (worker)

List of use descriptors

Process categories [PROC]:
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Outdoor; Delivery of solvent to plant storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm (Recommended: Outdoor factor 0.7; Use duration: short-term factor 0.1)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.74
Dermal: 0.01
Combined for all exposure routes: 0.75

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use vapour recovery units when necessary.. Clear transfer lines prior to de-coupling.
Recommended: Ensure adequate ventilation of the storage area.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Mixing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mixing with polystyrene beads in reactor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 11

Automated process with (semi) closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Transfer to and holding in waiting tank, Centrifuging of slurry of beads and process water

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.00

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 12

Drying and storage (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Drying of polystyrene powder/granules

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 13

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Indoor; Loading/packaging for transport to customers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 150 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.74
Dermal: 0.01
Combined for all exposure routes: 0.75

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Ensure the ventilation system is regularly maintained and tested.

Contributing exposure scenario 14

Treatment by heating (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Steam-heating and expansion of expandable polystyrene granulate

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 15

Storage (worker)

List of use descriptors

Process categories [PROC]:
PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage and ageing of partially expanded polystyrene granulate

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 16

Pelletising (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Storage and cutting of expanded polystyrene articles

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.00

Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Ensure the ventilation system is regularly maintained and tested.

Contributing exposure scenario 17

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC12: Use of blowing agents in manufacture of foam

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage and cutting of expanded polystyrene articles

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 17: Use as binders and release agents

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting and handling of waste.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use as binders and release agents (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Material transfers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0.14 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Clear transfer lines prior to de-coupling. Recommended: Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Transfer materials directly to mixing vessels.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 4

Mixing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Mixing operations; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.00

Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Provide extract ventilation to points where emissions occur.

Contributing exposure scenario 5

Mixing operations (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mixing operations (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.01
Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

Mold forming (worker)

List of use descriptors

Process categories [PROC]:

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mold forming; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Casting operations Open systems (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Casting operations Open systems; with local exhaust ventilation LEV Efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Recommended: Respiratory protective device RPE APF 10, factor 0.1)

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.03

Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%. Wear a respirator conforming to EN140 with Type A filter or better.

Contributing exposure scenario 8

Casting operations Open systems (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Casting operations Open systems (aerosols); with local exhaust ventilation LEV Efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 2.5 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 9

Spraying, Machine (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying, Machine; with local exhaust ventilation LEV Efficiency of 30%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 175 ppm (General ventilation, factor 0.7)
Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.86
Dermal: 0.05
Combined for all exposure routes: 0.91

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Spraying, Machine (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying, Machine (aerosols); with local exhaust ventilation LEV Efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm (LEV Efficiency of 95%)

Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.50

Dermal: 0.00

Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.03
Combined for all exposure routes: 0.28

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Provide extract ventilation to points where emissions occur. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 12

Spraying, Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying, Manual; with local exhaust ventilation LEV Efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (LEV Efficiency of 90%)
Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.05
Combined for all exposure routes: 0.17

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carry out in a vented booth or extracted enclosure. Segregate the activity away from other operations.
Recommended: Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 13

Spraying, Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying, Machine (aerosols); with local exhaust ventilation LEV Efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm (LEV Efficiency of 95%)

Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.50

Dermal: 0.00

Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carry out in a vented booth or extracted enclosure.

Recommended: Segregate the activity away from other operations. Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 95%.

Contributing exposure scenario 14

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: general ventilation)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 18: Use as binders and release agents

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use as binders and release agents (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Material transfers Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Material transfers Closed systems; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 1.37 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Transfer via enclosed lines.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
(Recommended: Use drum pumps. Efficiency of 80%; General ventilation, factor 0.7)
Dermal: 6.86 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Use drum pumps. Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Transfer materials directly to mixing vessels.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 4

Mixing operations (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Mixing operations (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.00

Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Handle substance within a closed system.

Contributing exposure scenario 5

Mixing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mixing operations; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: Concentration 15 - 20% factor 0.6)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

Mold forming (worker)

List of use descriptors

Process categories [PROC]:

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mold forming; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: Concentration 15 - 20% factor 0.6; General ventilation factor 0.7)
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Casting operations Open systems (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Casting operations Open systems; with local exhaust ventilation LEV Efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: Concentration 15 - 20% factor 0.6; APF=10)

Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.00

Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to points where emissions occur. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 8

Casting operations Open systems (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Casting operations Open systems (aerosols); with local exhaust ventilation LEV Efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 6 ppm (Concentration 15 - 20% factor 0.6)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.60
Dermal: 0.00
Combined for all exposure routes: 0.60

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Provide extract ventilation to points where emissions occur. Limit the substance content in the product to 25 %.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 9

Spraying, Machine (worker)

List of use descriptors

Process categories [PROC]:
PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Spraying, Machine; with local exhaust ventilation LEV Efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (LEV Efficiency of 95%)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by extracted full enclosure for the operation or equipment.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Segregate the activity away from other operations.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Spraying, Machine (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying, Machine (aerosols); with local exhaust ventilation LEV Efficiency of 95%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 3 ppm (LEV Efficiency of 95%)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.30
Dermal: 0.00
Combined for all exposure routes: 0.30

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by extracted full enclosure for the operation or equipment. Provide enhanced general ventilation by mechanical means. Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Segregate the activity away from other operations.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Roller application or brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.03

Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 12

Spraying, Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying, Manual; with local exhaust ventilation LEV Efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (LEV Efficiency of 90%; Recommended: APF=10)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.05
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carry out in a vented booth or extracted enclosure. Segregate the activity away from other operations.
Recommended: Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended:
Wear a respirator conforming to EN140 with Type A filter or better. (APF=10).
Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 13

Spraying, Manual (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying, Manual (aerosols); with local exhaust ventilation LEV Efficiency of 90%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm (LEV Efficiency of 90%; Recommended: APF=10)
Dermal: 2.0758 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carry out in a vented booth or extracted enclosure. Segregate the activity away from other operations.

Recommended: Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended:

Wear a respirator conforming to EN140 with Type A filter or better. (APF=10).

Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 14

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm (Recommended: Use duration 1 - 4 h, factor 0.6; General ventilation, efficiency of 50%)

Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10

Dermal: 0.00

Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 19: Use in agrochemicals

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in agrochemicals (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Transfer from/pouring from containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h daily

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Transfer from/pouring from containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: 1 - 4 h daily, factor 0.6)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Mixing operations, vessel/container (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h daily

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Mixing operations, vessel/container

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: 1 - 4 h daily, factor 0.6)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Spraying/fogging by manual application (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

1 - 4 h daily

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying/fogging by manual application

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 180 ppm (1 - 4 h daily, factor 0.6; concentration 25 % factor 0.6)

Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.89

Dermal: 0.12

Combined for all exposure routes: 1.01

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid carrying out operation for more than 4 hours. Limit the substance content in the product to 25 %.

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended:

Wear suitable coveralls to prevent exposure to the skin. Efficiency of 97%.

Wear a full face respirator conforming to EN140 with Type A filter or better.

Contributing exposure scenario 5

Spraying/fogging by machine application (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying/fogging by machine application; with local exhaust ventilation, efficiency of 80%

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: concentration < 25 %, factor 0.6)
Dermal: 2.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.
Recommended: Limit the substance content in the product to 25 %.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Ad hoc manual application via trigger sprays, dipping, etc (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h daily

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Ad hoc manual application via trigger sprays, dipping, etc

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: 1 - 4 h daily, factor 0.6)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Efficiency of 90%.

Contributing exposure scenario 7

Operation of equipment containing engine oils and similar (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h daily

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Operation of equipment containing engine oils and similar

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: 1 - 4 h daily, factor 0.6; concentration 25 %, factor 0.6)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Drain down system prior to equipment break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Efficiency of 90%.

Contributing exposure scenario 8

Disposal of wastes (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h daily

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Disposal of wastes

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: 1 - 4 h daily, factor 0.6; Outdoor, factor 0.7)

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.02

Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Dispose of waste product or used containers according to local regulations.

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 9

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage; Recommended: outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 0.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 20: Use in agrochemicals

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories: PC12: Fertilizers
PC27: Plant protection products

Application

Activities and processes: Covers the consumer use of agrochemicals in liquid and solid forms.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 50 %.
Duration and frequency of use: Covers use up to 0 events per day.
Human factors not influenced by risk management: Covers skin contact area up to 857.5 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; Covers use in room size of 20 m^3; Covers use under typical household ventilation. For each use event, covers use amounts up to 50 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in agrochemicals (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Lawn and garden preparations (Consumer)

List of use descriptors

Product (Sub-)Categories: PC12: Fertilizers

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Concentration of the substance in a mixture:
8^[SofernNichtAndersK], [StoffanteileProzentK "100"] .)

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.5 cm²; For each use event, covers use amounts up to 0.3 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 71.46
oral: 15.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.22
oral: 0.58
inhalative: 0.00
combined for all exposure routes: 0.80

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Covers the consumer use in agrochemicals in liquid and solid forms. (Consumer)

List of use descriptors

Product (Sub-)Categories: PC27: Plant protection products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 50 %; covers skin contact area up to 857.5 cm²; For each use event, covers use amounts up to 0.3 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 71.46
oral: 15.00
inhalative: 0.00

RCR frequency of use: yearly
dermal: 0.22
oral: 0.58
inhalative: 0.00
combined for all exposure routes: 0.80

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 21: Use in fuels

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in fuels (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC7: Use of functional fluid at industrial site

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. Clear transfer lines prior to de-coupling.
Recommended: Provide extract ventilation to points where emissions occur. Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: No specific measures identified.

Contributing exposure scenario 5

General exposures (open systems), Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Use as a fuel Closed systems

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 5 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.02
Dermal: 0.00
Combined for all exposure routes: 0.03

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
No specific measures identified.

Contributing exposure scenario 6

General exposures (open systems), Closed systems (worker)

List of use descriptors

Process categories [PROC]:
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Use as a fuel Closed systems

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 7

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Equipment cleaning and maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Apply vessel entry procedures including use of forced supplied air.
Recommended: Drain down and flush system prior to equipment break-in or maintenance.
Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.

Contributing exposure scenario 8

Vessel and container cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Vessel and container cleaning; Recommended: With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Apply vessel entry procedures including use of forced supplied air.
Recommended: Drain down and flush system prior to equipment break-in or maintenance.
Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.

Contributing exposure scenario 9

Storage (worker)

List of use descriptors

Process categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage; Recommended: outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: outdoor use factor 0.7)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system. Avoid dip sampling.
Recommended: Transfer via enclosed lines.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 22: Use in fuels

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in fuels (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. Clear transfer lines prior to de-coupling.
Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: 1 - 4 h, factor 0.6)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Refuelling vehicles, Refuelling aircraft (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Refuelling vehicles, Refuelling aircraft

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: 1 - 4 h, factor 0.6)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
General exposures (closed systems)

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 6

General exposures (open systems), Closed systems (worker)

List of use descriptors

Process categories [PROC]:
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Use as a fuel Closed systems

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 7

General exposures (open systems), Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Use as a fuel Closed systems

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05

Dermal: 0.00

Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. No other specific measures identified.

Contributing exposure scenario 8

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment cleaning and maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Drain down and flush system prior to equipment break-in or maintenance.
Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.

Contributing exposure scenario 9

Vessel and container cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Vessel and container cleaning

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: RPE factor 0.1)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Apply vessel entry procedures including use of forced supplied air.
Recommended: Drain down and flush system prior to equipment break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.

Contributing exposure scenario 10

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Storage; Recommended: outdoor

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00

Dermal: 0.00

Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:

Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 23: Use in fuels

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories: PC13: Fuels

Application

Activities and processes: Covers consumer uses in liquid fuels.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Duration and frequency of use: Covers use up to 0.143 events per day. Covers exposure up to 2 h per event.
Human factors not influenced by risk management: Covers skin contact area up to 420 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; Covers use in room size of 20 m^3; Covers use under typical household ventilation; For each use event, covers use amounts up to 37,500 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in fuels (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Subcategory: Liquid Automotive Refuelling (Consumer)

List of use descriptors

Product (Sub-)Categories: PC13: Fuels

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 100 %; covers skin contact area up to 210 cm²; For each use event, covers use amounts up to 37,500 g. 1 event per week (52 days per year); covers use up to 1 per day; Covers exposure up to 0.05 h (3 minutes) per event. Covers outdoor use.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 5.01
oral: 0.00
inhalative: 0.220

RCR frequency of use: yearly
dermal: 0.02
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.02

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:
No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Subcategory: Liquid Scooter Refuelling (Consumer)

List of use descriptors

Product (Sub-)Categories: PC13: Fuels

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:
Covers percentage substance in the product up to 100 %; covers skin contact area up to 210 cm²; For each use event, covers use amounts up to 3,750 g. 1 event per week (52 days per year); covers use up to 1 per day; Covers exposure up to 0.03 h (2 minutes) per event. Covers outdoor use.

Risk characterisation ratio (RCR):
Exposure assessment: chronic
dermal: 5.01
oral: 0.00
inhalative: 0.146

RCR frequency of use: yearly
dermal: 0.02
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.02

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 4

Subcategory: Liquid, Garden equipment - Use (Consumer)

List of use descriptors

Product (Sub-)Categories: PC13: Fuels

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; For each use event, covers use amounts up to 750 g. 1 event in 2 weeks (26 days per year); covers use up to 1 per day; Covers exposure up to 2 h per event. Covers outdoor use.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.510

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.01
combined for all exposure routes: 0.01

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 5

Subcategory: Liquid, Garden equipment - Refuelling (Consumer)

List of use descriptors

Product (Sub-)Categories: PC13: Fuels

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 420 cm²; For each use event, covers use amounts up to 750 g. 1 event in 2 weeks (26 days per year); covers use up to 1 per day; Covers exposure up to 0.03 h (2 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 4.90
oral: 0.00
inhalative: 0.057

RCR frequency of use: yearly
dermal: 0.02
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.02

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 6

Subcategory: Liquid, Home space heater fuel (Consumer)

List of use descriptors

Product (Sub-)Categories: PC13: Fuels

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 420 cm²; For each use event, covers use amounts up to 750 g. 1 event in 2 weeks (26 days per year); covers use up to 1 per day; Covers exposure up to 8 h per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 4.90
oral: 0.00
inhalative: 9.04

RCR frequency of use: yearly
dermal: 0.02
oral: 0.00
inhalative: 0.10
combined for all exposure routes: 0.12

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 7

Subcategory: Liquid, Lamp oil (Consumer)

List of use descriptors

Product (Sub-)Categories: PC13: Fuels

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 210 cm²; For each use event, covers use amounts up to 100 g. 1 event per week (52 days per year); covers use up to 1 per day; Covers exposure up to 0.013 h (<1 minutes) per event. Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 5.01
oral: 0.00
inhalative: 0.019

RCR frequency of use: yearly
dermal: 0.02
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.02

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 24: Functional fluids

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Functional fluids (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC7: Use of functional fluid at industrial site

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Transfer via enclosed lines. Clear transfer lines prior to de-coupling.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Pelletising Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Pelletising Closed systems; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Provide extract ventilation to points where emissions occur.

Contributing exposure scenario 5

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Carefully pour from containers.
Recommended: Provide extract ventilation to material transfer points and other openings.
Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
General exposures (closed systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Handle substance within a predominantly closed system provided with extract ventilation.

Contributing exposure scenario 7

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.01
Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide extract ventilation to points where emissions occur.

Contributing exposure scenario 8

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Restrict area of openings to equipment. Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems) (aerosols); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.01
Combined for all exposure routes: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Restrict area of openings to equipment. Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Remanufacture of reject articles (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Remanufacture of reject articles; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Drain down system prior to equipment break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

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Operational conditions

Product characteristics:
Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Duration and frequency of use:
Recommended: < 4 h

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Equipment maintenance; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm (Recommended: < 4 h, LEV reduction factor 0.6)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Drain down system prior to equipment break-in or maintenance. Transfer via enclosed lines.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 12

Storage (worker)

List of use descriptors

Process categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics:
Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 25: Functional fluids

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Functional fluids (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers: with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.
Use drum pumps or carefully pour from container. Avoid spillage when withdrawing pump.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Transfer from/pouring from containers (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Transfer from/pouring from containers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Ensure material transfers are under containment or extract ventilation.
Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 4

Filling / preparation of equipment from drums or containers (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Filling / preparation of equipment from drums or containers; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.
Use drum pumps or carefully pour from container. Avoid spillage when withdrawing pump.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 5

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
General exposures (closed systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 1.37 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
No specific measures identified.
Recommended: Handle substance within a predominantly closed system provided with extract ventilation.

Contributing exposure scenario 6

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:
PROC20: Use of functional fluids in small devices

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 20 ppm
Dermal: 1.71 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.10
Dermal: 0.01
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Handle substance within a predominantly closed system provided with extract ventilation.

Contributing exposure scenario 7

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC20: Use of functional fluids in small devices

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems) (elevated temperature); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 1.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Restrict area of openings to equipment. Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely.

Contributing exposure scenario 8

Remanufacture of reject articles (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Duration and frequency of use:
Recommended: < 4 h

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Remanufacture of reject articles; with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 100 ppm (Recommended: < 4 h, LEV reduction factor 0.6)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.49
Dermal: 0.01
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Operate activity away from sources of substance emission or release.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 9

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Equipment maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Operate activity away from sources of substance emission or release.
Drain down system prior to equipment break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage; Recommended: general ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 26: Functional fluids

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories: PC16: Heat transfer fluids
PC17: Hydraulic fluids

Application

Activities and processes: Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Duration and frequency of use: Covers use up to 0.01 events per day. Covers exposure up to 0.167 h (10 minutes) per event.
Human factors not influenced by risk management: Covers skin contact area up to 468 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; Covers use in room size of 20 m^3; Covers use under typical household ventilation. For each use event, covers use amounts up to 2,200 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Functional fluids (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Heat transfer fluids (Consumer)

List of use descriptors

Product (Sub-)Categories: PC16: Heat transfer fluids

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 2,200 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.85
oral: 0.00
inhalative: 0.044

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Heat transfer fluids (Consumer)

List of use descriptors

Product (Sub-)Categories: PC17: Hydraulic fluids

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 100 %; covers skin contact area up to 468.00 cm²; For each use event, covers use amounts up to 2,200 g. Covers use up to 4 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minutes) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.85
oral: 0.00
inhalative: 0.044

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 27: De-icing and anti-icing applications

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

De-icing and anti-icing applications (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: Spray duration factor 0.2; Outdoor factor 0.7)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.3

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Material transfers; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (Recommended: Spray duration factor 0.2; Outdoor factor 0.7)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.2
Dermal: 0.0
Combined for all exposure routes: 0.3

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Spraying/fogging by machine application (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

< 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Spraying/fogging by machine application; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Spray duration factor 0.2; Recommended: Outdoor factor 0.7)

Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5

Dermal: 0.1

Combined for all exposure routes: 0.6

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid carrying out operation for more than 1 hour. Stay upwind/keep distance from source.

Recommended: Ensure spraying away from persons.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Spraying/fogging by machine application (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

< 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Spraying/fogging by machine application; Outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 70 ppm (Spray duration factor 0.2; outdoor factor 0.7)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.5
Dermal: 0.1
Combined for all exposure routes: 0.6

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 1 hour. Stay upwind/keep distance from source. Ensure spraying away from persons.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Equipment cleaning and maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.1
Dermal: 0.0
Combined for all exposure routes: 0.2

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 28: De-icing and anti-icing applications

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories: PC4: Anti-freeze and de-icing products

Application

Activities and processes: De-icing of vehicles and similar equipment by spraying.

Unless otherwise stated:
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 40 %.
Duration and frequency of use: Covers use up to 1 event per day. Covers exposure up to 0.25 h (15 minute) per event.
Human factors not influenced by risk management: Covers skin contact area up to 428 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; Covers use in room size of 20 m^3; Covers use under typical household ventilation. For each use event, covers use amounts up to 2,000 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

De-icing and anti-icing applications (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Washing car window (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; For each use event, covers use amounts up to 0.5 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.02 h (1 minute) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 0.002

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.00
combined for all exposure routes: 0.00

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Pouring into radiator (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 428.00 cm²; For each use event, covers use amounts up to 2,000 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.17 h (10 minute) per event. Covers use in a one car garage (34m³) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 14.27
oral: 0.00
inhalative: 3.614

RCR frequency of use: yearly
dermal: 0.04
oral: 0.00
inhalative: 0.04
combined for all exposure routes: 0.09

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 4

Lock de-icer (Consumer)

List of use descriptors

Product (Sub-)Categories: PC4: Anti-freeze and de-icing products

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 50 %; covers skin contact area up to 214.4 cm^2; For each use event, covers use amounts up to 4 g. Covers use up to 365 days per year; covers use up to 1 per day; Covers exposure up to 0.25 h (15 minute) per event. Covers use in a one car garage (34m^3) under typical ventilation.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 17.87
oral: 0.00
inhalative: 0.511

RCR frequency of use: yearly
dermal: 0.06
oral: 0.00
inhalative: 0.01
combined for all exposure routes: 0.06

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 29: Road and construction applications

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Road and construction applications (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8d: wide dispersive outdoor use of processing aids in open systems
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Drum/batch transfers (Non-dedicated facility) (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure operation is undertaken outdoors.

Contributing exposure scenario 3

Drum/batch transfers (Dedicated facility) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure operation is undertaken outdoors. Use dedicated equipment.
Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Drum/batch transfers (Dedicated facility) (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Drum/batch transfers; elevated temperature

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (RPE factor 0.1)
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.01
Combined for all exposure routes: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Operation is carried out at elevated temperature (> 20 °C above ambient temperature).
Use dedicated equipment. Clear transfer lines prior to de-coupling.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.

Contributing exposure scenario 5

Rolling, Brushing (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Rolling, Brushing; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.03
Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure operation is undertaken outdoors. Use long handled brushes and rollers.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.

Contributing exposure scenario 6

Spraying/fogging by machine application (worker)

List of use descriptors

Process categories [PROC]:

PROC11: Non industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Spraying/fogging by machine application; Recommended: outdoor use

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Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm (RPE factor 0.1)
Dermal: 107.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.12
Combined for all exposure routes: 0.37

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Automate activity where possible. Stay upwind/keep distance from source.
Recommended: Ensure operation is undertaken outdoors. Ensure operatives are trained to minimise exposures. Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.

Contributing exposure scenario 7

Dipping, immersion and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Dipping, immersion and pouring; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely. Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Equipment cleaning and maintenance; Recommended: outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 30:
Other consumer uses (Cosmetics, personal care)

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories: PC28: Perfumes, fragrances
PC39: Cosmetics, personal care products

Application

Activities and processes: De-icing of vehicles and similar equipment by spraying.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios: 1 Other consumer uses (environment) Page 314

Contributing exposure scenario 1

Other consumer uses (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8b: Wide dispersive indoor use of reactive substances in open systems

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Other relevant operational conditions:
Operational conditions are described by specific EU-document and assessed outside REACH in accordance with Article 2(6) REACH.

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 31: Use in laboratories

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses
SU22: Professional uses

Application

Activities and processes: Use of the substance within laboratory settings, including material transfers and equipment cleaning.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Use in laboratories (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC2: Formulation into mixture
ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

> 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Laboratory activities; Small quantities < 1000 ml; With local exhaust ventilation, Use fume cupboard.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV Efficiency of 97%).

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05

Dermal: 0.00

Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 3

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

> 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; General ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: General ventilation)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.
Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; Use fume cupboard.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV Efficiency of 97%; Application duration factor 0.6)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear transfer lines prior to de-coupling.
Recommended: Provide enhanced general ventilation by mechanical means. Or: Ensure operation is undertaken outdoors. Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 1 - 4 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV; Application duration factor 0.6)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Duration and frequency of use:
Recommended: 1 - 4 h

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; General ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm (Recommended: General ventilation; Application duration factor 0.6)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
No specific measures identified.
Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:
PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Duration and frequency of use:
Recommended: 15 min - 1 h

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; Use fume cupboard.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV; Application duration factor 0.2)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 8

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 min - 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV; Application duration factor 0.2)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use dedicated equipment.
Recommended: Avoid carrying out operation for more than 1 hour.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: 15 min - 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Laboratory activities; Small quantities < 1000 ml; General ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: General ventilation; Application duration factor 0.2)

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05

Dermal: 0.00

Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment.

Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 15 min

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; Use fume cupboard.

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV; Application duration factor 0.1)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Allow time for product to drain from workpiece. Automate activity where possible.
Recommended: Provide enhanced general ventilation by mechanical means. Restrict area of openings to equipment.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 11

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 15 min

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: LEV; Application duration factor 0.1)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear a respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection.

Contributing exposure scenario 12

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

< 15 min

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Laboratory activities; Small quantities < 1000 ml; General ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 6 ppm (Application duration factor 0.6; Recommended: General ventilation)
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.60
Dermal: 0.00
Combined for all exposure routes: 0.60

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid carrying out operation for more than 4 hours. Automate activity where possible.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Contributing exposure scenario 13

Cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Duration and frequency of use:
Recommended: 15 min - 1 h

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Cleaning; Use fume cupboard.

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm (Recommended: LEV Efficiency of 97%; Application duration factor 0.2)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
No specific measures identified.
Recommended: Handle substance within a predominantly closed system provided with extract ventilation. Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 14

Cleaning (worker)

List of use descriptors

Process categories [PROC]:
PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Duration and frequency of use:
Recommended: 15 min - 1 h

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Cleaning; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm (Recommended: LEV; Application duration factor 0.2)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Automate activity where possible.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 15

Cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

15 min - 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Cleaning; General ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 8.5 ppm (Recommended: LEV Efficiency of 66%; Application duration factor 0.2)
Dermal: 5.5 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.85
Dermal: 0.01
Combined for all exposure routes: 0.86

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 16

Cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 15 min

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Cleaning; Use fume cupboard. (Efficiency of 97%)

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Recommended: LEV Efficiency of 97%; Application duration factor 0.1)

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.00

Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Automate activity where possible.

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 17

Cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 15 min

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Cleaning; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Recommended: LEV; Application duration factor 0.1)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Provide enhanced general ventilation by mechanical means. Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 18

Cleaning (worker)

List of use descriptors

Process categories [PROC]:

PROC10: Roller application or brushing

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 15 min

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Cleaning; General ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Recommended: General ventilation; Application duration factor 0.1)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.01
Combined for all exposure routes: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle. Recommended: Provide enhanced general ventilation by mechanical means. Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 33: Explosives manufacture & use

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Explosives manufacture & use (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8e: Wide dispersive outdoor use of reactive substances in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. Clear transfer lines prior to de-coupling.
Remotely vent displaced vapours.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.02
Combined for all exposure routes: 0.14

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Use drum pumps.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 90%.

Contributing exposure scenario 4

Mixing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Closed systems; With local exhaust ventilation. Or: Outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Recommended: Outdoor use factor 0.7)

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.00

Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 5

Mixing operations (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Mixing operations (open systems); with local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Duration and frequency of use:

Recommended: < 1 h

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
material transfers; outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm (Recommended: Application duration factor 0.2)
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Transfer from/pouring from containers, Non-dedicated facility (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Transfer from/pouring from containers, Non-dedicated facility

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.02
Combined for all exposure routes: 0.14

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Use drum pumps.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 90%.

Contributing exposure scenario 8

Operation of equipment containing engine oils and similar (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Operation of equipment containing engine oils and similar

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.01
Combined for all exposure routes: 0.06

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 9

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Equipment maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.02
Combined for all exposure routes: 0.14

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing exposure scenario 10

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 34: Rubber production and processing

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Rubber production and processing (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC1: Manufacture of the substance
ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Material transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Material transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.
Remotely vent displaced vapours.

Contributing exposure scenario 3

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Material transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.01
Combined for all exposure routes: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide extract ventilation to material transfer points and other openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Bulk weighing (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Bulk weighing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 5

Small scale weighing (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Small scale weighing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.
Carefully handle the substance to minimise releases.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

Additive premixing (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Additive premixing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.
Carefully handle the substance to minimise releases.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Small scale weighing (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Small scale weighing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure material transfers are under containment or extract ventilation.
Carefully handle the substance to minimise releases.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 8

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Material transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Transfer materials directly to mixing vessels.

Contributing exposure scenario 9

Calendering (including Banburys) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Calendering (including Banburys); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Efficiency of 90%)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by extracted full enclosure for the operation or equipment.
Recommended: Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 10

Calendering (including Banburys) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Calendering (including Banburys); with local exhaust ventilation; aerosols

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide extract ventilation to material transfer points and other openings.
Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 11

Pressing uncured rubber blanks (worker)

List of use descriptors

Process categories [PROC]:

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Pressing uncured rubber blanks; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 12

Tyre build up (worker)

List of use descriptors

Process categories [PROC]:

PROC7: Industrial spraying

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa

Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Assumes use at not more than 20 °C above ambient temperature.

Tyre build up; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Efficiency of 90%)

Dermal: 42.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.05

Combined for all exposure routes: 0.17

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use in ventilated spray booths only.

Recommended: Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 13

Vulcanisation (automated task) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Vulcanisation; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Efficiency of 90%)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 14

Vulcanisation (automated task) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Vulcanisation; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide extract ventilation to material transfer points and other openings.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 15

Vulcanisation (manual) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Vulcanisation; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Efficiency of 90%)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Provide extract ventilation to material transfer points and other openings.
Recommended: Provide enhanced general ventilation by mechanical means.

Operational conditions and risk management measures:

Provide enhanced general ventilation by mechanical means.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 16

Vulcanisation (manual) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Vulcanisation; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 17

Cooling cured articles (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Cooling cured articles; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm (Efficiency of 90%)
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Minimise exposure by extracted full enclosure for the operation or equipment.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 18

Production of articles by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Production of articles by dipping and pouring; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 19

Finishing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC21: Low energy manipulation of substances bound in materials and/or articles

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Finishing operations

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0 ppm
Dermal: 2.83 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 20

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Equipment maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 21

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid, vapour pressure 0.5 - 10 kPa
Vapour pressure: 5 - 100 hPa at 20 °C

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.
Assumes use at not more than 20 °C above ambient temperature.
Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0.14 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 35: Polymer processing

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Polymer processing (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

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Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
No specific measures identified.
Recommended: Provide extract ventilation to material transfer points and other openings.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 3

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 4

Bulk weighing (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk weighing

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 5

Small scale weighing (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Small scale weighing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d
Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Carefully handle the substance to minimise releases.
Recommended: Ensure material transfers are under containment or extract ventilation.
Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

Additive premixing (worker)

List of use descriptors

Process categories [PROC]:
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable
Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.
Human factors not influenced by risk management:
not applicable
Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Additive premixing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.01
Combined for all exposure routes: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carefully handle the substance to minimise releases.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Additive premixing (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Additive premixing; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carefully handle the substance to minimise releases.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 8

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use dry break couplings for material transfer.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 9

Calendering (including Banburys) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Calendering (including Banburys); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.03
Combined for all exposure routes: 0.28

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 10

Calendering (including Banburys) (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Calendering (including Banburys); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.03
Combined for all exposure routes: 0.15

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 11

Production of articles by dipping and pouring (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Production of articles by dipping and pouring

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 12

Extrusion and masterbatching (worker)

List of use descriptors

Process categories [PROC]:

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Extrusion and masterbatching

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 50 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
No specific measures identified.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:
Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 13

Injection moulding of articles (worker)

List of use descriptors

Process categories [PROC]:
PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Injection moulding of articles

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.00
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 14

Finishing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC21: Low energy manipulation of substances bound in materials and/or articles

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Finishing operations

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0 ppm
Dermal: 2.83 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 15

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.02

Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Clear up spills immediately and dispose of waste safely.

Recommended: Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 16

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 36: Polymer processing

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Polymer processing (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8a: wide dispersive indoor use of processing aids in open systems
ERC8d: wide dispersive outdoor use of processing aids in open systems

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Recommended: Ensure material transfers are under containment or extract ventilation.

Contributing exposure scenario 3

Material transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Material transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use bulk or semi-bulk handling systems.
Recommended: Transfer via enclosed lines. Provide extract ventilation to material transfer points and other openings.

Contributing exposure scenario 4

Injection moulding of articles (worker)

List of use descriptors

Process categories [PROC]:

PROC6: Calendering operations

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Injection moulding of articles; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 27.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.03

Combined for all exposure routes: 0.52

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 5

Injection moulding of articles (worker)

List of use descriptors

Process categories [PROC]:

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Injection moulding of articles; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 3.43 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 6

Rework of articles (worker)

List of use descriptors

Process categories [PROC]:

PROC21: Low energy manipulation of substances bound in materials and/or articles

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Rework of articles

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0 ppm
Dermal: 2.83 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 7

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm

Dermal: 2.83 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49

Dermal: 0.00

Combined for all exposure routes: 0.50

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Drain or remove substance from equipment prior to break-in or maintenance. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 8

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:
Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:
not applicable

Other relevant operational conditions:
Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 20 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):
Inhalative: 0.10
Dermal: 0.00
Combined for all exposure routes: 0.10

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Store substance within a closed system. No specific measures identified.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 37: Water treatment

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Water treatment (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC3: Formulation in materials

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: General ventilation)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. Clear transfer lines prior to de-coupling.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Use drum pumps. Efficiency of 90%.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (closed systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12

Dermal: 0.00

Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 5

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (open systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10
Dermal: 0.01
Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

Pouring from small containers (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Pouring from small containers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carefully pour from containers.
Recommended: Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment maintenance; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle. Recommended: Drain or remove substance from equipment prior to break-in or maintenance. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 8

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 38: Water treatment

List of use descriptors

Sector of uses [SU]: SU22: Professional uses

Application

Activities and processes: Covers the use of the substance for the treatment of water in open and closed systems.

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Water treatment (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Use drum pumps. Avoid spillage when withdrawing pump.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 3

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (closed systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 4

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (open systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.00

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Restrict area of openings to equipment.

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 5

Pouring from small containers (worker)

List of use descriptors

Process categories [PROC]:

PROC13: Treatment of articles by dipping and pouring

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Pouring from small containers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 0.69 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.00
Combined for all exposure routes: 0.49

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carefully pour from containers. Avoid spillage when withdrawing pump.
Recommended: Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 6

Equipment maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Equipment maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 100 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.49
Dermal: 0.02
Combined for all exposure routes: 0.51

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Storage

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00

Dermal: 0.00

Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 39: Water treatment

List of use descriptors

Sector of uses [SU]: SU21: Consumer uses

Product Categories: PC36: Water softeners
PC37: Water treatment chemicals

Application

Activities and processes: Covers the use of the substance for the treatment of water in open and closed systems.

Unless otherwise stated
Concentration of the substance in a mixture: Covers percentage substance in the product up to 20 %.
Duration and frequency of use: Covers use up to 1 events per day.
Human factors not influenced by risk management: Covers skin contact area up to 6,600 cm^2.
Other relevant operational conditions: Covers use at ambient temperatures; covers use in room size of 20 m^3; covers use under typical household ventilation. For each use event, covers use amounts up to 10 g.

Remark: Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Water treatment (environment)

List of use descriptors

Environmental release categories [ERC]:
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Water treatment chemicals (Consumer)

List of use descriptors

Product (Sub-)Categories: PC36: Water softeners

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 6,600 cm²; For each use event, covers use amounts up to 10 g. For each use event, assumes swallowed amount of 0.00002 g. Covers use up to 1 events per day; Covers exposure up to 8 h per event. Covers use up to 365 days per year; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.00
oral: 0.00
inhalative: 6.887

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.08
combined for all exposure routes: 0.08

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Contributing exposure scenario 3

Covers the use of the substance for the treatment of water in open and closed systems. (Consumer)

List of use descriptors

Product (Sub-)Categories: PC37: Water treatment chemicals

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Exposure prediction

Exposure estimation and reference to its source:

Covers percentage substance in the product up to 20 %; covers skin contact area up to 6,600 cm²; For each use event, covers use amounts up to 10 g. For each use event, covers use amounts up to 0.0002 g. Covers use up to 1 events per day; Covers exposure up to 8 h per event. Covers use up to 365 days per year; Covers use in room size of 20 m³.

Risk characterisation ratio (RCR):

Exposure assessment: chronic
dermal: 0.01
oral: 0.00
inhalative: 6.887

RCR frequency of use: yearly
dermal: 0.00
oral: 0.00
inhalative: 0.08
combined for all exposure routes: 0.08

Risk management measures

Conditions and measures related to information and behavioural advice to consumers:

No specific risk management measure identified beyond those operational conditions stated.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.

Exposure Scenario 40: Mining chemicals

List of use descriptors

Sector of uses [SU]: SU3: Industrial uses

Application

Activities and processes: Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities, and substance recovery and disposal

Remark: Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Contributing Scenarios:

Contributing exposure scenario 1

Mining chemicals (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Operational conditions

Other information: In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation is not necessary. Consequently all identified uses of the substance are considered as safe for the environment.

Contributing exposure scenario 2

Bulk transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Bulk transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm (Recommended: Outdoor use)
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system. Clear transfer lines prior to de-coupling.

Contributing exposure scenario 3

Drum/batch transfers (worker)

List of use descriptors

Process categories [PROC]:

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions

Product characteristics:

Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Drum/batch transfers

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.01
Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Avoid spillage when withdrawing pump.
Recommended: Use drum pumps. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 4

Pouring from small containers (worker)

List of use descriptors

Process categories [PROC]:

PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Pouring from small containers; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25

Dermal: 0.01

Combined for all exposure routes: 0.25

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Carefully handle the substance to minimise releases.

Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 5

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

General exposures (closed systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure samples are obtained under containment or extract ventilation.

Contributing exposure scenario 6

General exposures (open systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC5: Mixing or blending in batch processes

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
General exposures (open systems); With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Recommended: No specific measures identified. Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Restrict area of openings to equipment. Provide extract ventilation to emission points when contact with warm (> 50 °C) lubricant is likely.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 7

Phase separation Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Phase separation Closed systems; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 20 ppm

Dermal: 6.86 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.10

Dermal: 0.01

Combined for all exposure routes: 0.11

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Recommended: Provide extract ventilation to material transfer points and other openings.

Contributing exposure scenario 8

Ion exchange processes Closed systems (worker)

List of use descriptors

Process categories [PROC]:

PROC2: Use in closed, continuous process with occasional controlled exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Ion exchange processes Closed systems; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 1.37 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.05
Dermal: 0.00
Combined for all exposure routes: 0.05

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Contributing exposure scenario 9

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC3: Use in closed batch process (synthesis or formulation)

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa
Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Process sampling; With local exhaust ventilation

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 25 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.12
Dermal: 0.00
Combined for all exposure routes: 0.12

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.
Recommended: Ensure samples are obtained under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374.

Contributing exposure scenario 10

Mixing operations (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Mixing operations

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm

Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00

Dermal: 0.00

Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

No specific measures identified.

Contributing exposure scenario 11

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Operational conditions

Product characteristics: Liquid

Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).

Equipment cleaning and maintenance

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 50 ppm
Dermal: 13.71 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.25
Dermal: 0.02
Combined for all exposure routes: 0.26

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Recommended: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Recommended: Wear suitable gloves tested to EN374. Efficiency of 80%.

Contributing exposure scenario 12

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC1: Use in closed process, no likelihood of exposure

Operational conditions

Product characteristics: Liquid
Vapour pressure: 60.20 hPa

Amounts used: not applicable

Concentration of the substance in a mixture:

Covers percentage substance in the product up to 100 %.

Human factors not influenced by risk management:

not applicable

Other relevant operational conditions:

Covers daily exposures up to 8 h (unless stated differently).
Storage; outdoor use

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 0.01 ppm
Dermal: 0.34 mg/kg/d

Risk characterisation ratio (RCR):

Inhalative: 0.00
Dermal: 0.00
Combined for all exposure routes: 0.00

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system.

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Health:
Scalingcalculationinformationcanbeobtainedbycontacting "info@ecoonline.com". The ECETOCTRAtoolhasbeenusedtoestimateworkplaceexposuresunlessotherwiseindicated. Whereotherriskmanagementmeasures/operationalconditionsareadopted,thenusersshould ensurethatrisksaremanagedtoatleastequivalentlevels.

Environment:Noexposureassessmentpresentedfortheenvironment.