

SAFETY DATA SHEET



n-Propanol
10570

Version / Revision
Supersedes Version

4
3.00***

Revision Date
Issuing date

25-Jun-2021
25-Jun-2021

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

1.1. Product identifier

Identification of the
substance/preparation

n-Propanol

CAS-No
EC No.

71-23-8
200-746-9

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

Identified uses

Intermediate
Formulation
Distribution of substance
coatings
cleaning agent
Lubricants and lubricant additives
Metal working fluids / rolling oils
laboratory chemicals

Uses advised against

None

1.3. Details of the supplier of the safety data sheet

Company/Undertaking
Identification

OQ Chemicals GmbH
Rheinpromenade 4A
D-40789 Monheim
Germany

Product Information

Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oq.com

1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK)
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Flammable liquid Category 2, H225
Serious eye damage/eye irritation Category 1, H318
Target Organ Systemic Toxicant - Single exposure Category 3, H336

Additional information

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For full text of Hazard- and EU Hazard-statements see SECTION 16.

2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

Hazard pictograms



Signal word

Danger

Hazard statements

H225: Highly flammable liquid and vapour.
H318: Causes serious eye damage.
H336: May cause drowsiness or dizziness.

Precautionary statements

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing gas/mist/vapours.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P403 + P235: Store in a well ventilated place. Keep cool.

2.3. Other hazards

Vapours may form explosive mixture with air

Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback

Components of the product may be absorbed into the body by inhalation and ingestion

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	1272/2008/EC	Concentration (%)
Propan-1-ol	71-23-8	Flam. Liq. 2; H225 Eye Dam. 1; H318 STOT SE 3; H336	> 99,8

For full text of Hazard- and EU Hazard-statements see SECTION 16.



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SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin

Wash off immediately with plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

4.2. Most important symptoms and effects, both acute and delayed

Main symptoms

gastrointestinal discomfort, dizziness, drowsiness, nausea, weakness, abdominal pain, vomiting.

Special hazard

central nervous system effects, Lung irritation, Prolonged skin contact may defat the skin and produce dermatitis.

4.3. Indication of any immediate medical attention and special treatment needed

General advice

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically. If ingested, irrigate the stomach using activated charcoal.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

foam, dry chemical, carbon dioxide (CO₂), water spray

Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:

carbon monoxide (CO)

carbon dioxide (CO₂)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback

Vapours may form explosive mixture with air

5.3. Advice for firefighters

Special protective equipment for firefighters

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Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting

Cool containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.

For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

6.3. Methods and material for containment and cleaning up

Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Further info may be available in the appropriate Exposure scenarios in the annex to this SDS.

Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms. Do not use compressed air for filling, discharging or handling.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment

See Section 8: Environmental exposure controls.

Incompatible products

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strong oxidizing agents
strong acids

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback. Vapours may form explosive mixture with air.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Store at temperatures not exceeding 38 °C/ 100 °F.

Unsuitable material

Attacks some forms of plastic and rubber

Temperature class

T2

7.3. Specific end use(s)

Intermediate

Formulation

Distribution of substance

coatings

cleaning agent

Lubricants and lubricant additives

Metal working fluids / rolling oils

laboratory chemicals

For specific end use information see the annex of this safety data sheet

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits European Union

No exposure limits established

Exposure limits UK

EH40 WELs

Component	TWA (mg/m ³)	TWA (ppm)	STEL (mg/m ³)	STEL (ppm)
Propan-1-ol CAS: 71-23-8	500	200	625	250

EH40 WELs and Appendix 5 Carcinogens

Component	Skin Absorption	Asphyxia	Respiratory irritant	included w/o limits	Carcinogen
Propan-1-ol	Yes				

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CAS: 71-23-8					
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Note

For details and further information please refer to the original regulation.

DNEL & PNEC

Propan-1-ol, CAS: 71-23-8

Workers

DN(M)EL - long-term exposure - systemic effects - Inhalation	268 mg/m ³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	1723 mg/m ³
DN(M)EL - long-term exposure - systemic effects - Dermal	136 mg/kg bw/day

General population

DN(M)EL - long-term exposure - systemic effects - Inhalation	80 mg/m ³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	1036 mg/m ³
DN(M)EL - long-term exposure - systemic effects - Dermal	81 mg/kg bw/day
DN(M)EL - long-term exposure - systemic effects - Oral	61 mg/kg bw/day

Environment

PNEC aqua - freshwater	10 mg/l
PNEC aqua - marine water	1 mg/l
PNEC aqua - intermittent releases	10 mg/l
PNEC STP	96 mg/l
PNEC sediment - freshwater	22,8 mg/kg
PNEC sediment - marine water	2,28 mg/kg
PNEC soil	2,2 mg/kg
Secondary poisoning	No potential for bioaccumulation

8.2. Exposure controls

Special adaptations (REACH)

Not applicable.

Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection

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Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Equipment should conform to EN 166

Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material	nitrile rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,55 mm
Break through time	> 480 min

Suitable material	butyl-rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,3 mm
Break through time	> 480 min

Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection

Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.

Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

Additional advice

Further details on substance data can be found in the registration dossier under the following link:
<http://echa.europa.eu/information-on-chemicals/registered-substances>. For specific exposure controls see the annex to this safety data sheet.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	colourless
Odour	alcoholic
Odour threshold	< 0,07 - 100 mg/m ³
pH	No data available
Melting point/range	< -90 °C (Pour point)
Method	DIN ISO 3016
Boiling point/range	97 °C @ 1013 hPa
Method	OECD 103
Flash point	23 °C
Method	DIN 51755
Evaporation rate	1,0 (n-Butyl acetate = 1)
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	2,1 Vol %

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Upper explosion limit 13,5 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
26	2,6	0,026	20	68	DIN EN 13016-2
133	13,3	0,133	50	122	DIN EN 13016-2

Vapour density 2,1 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,8036	20	68	DIN 51757

Solubility miscible, in water, OECD 105

log Pow 0,2 (measured), OECD 117

Autoignition temperature 395 °C @ 1004 hPa

Method DIN 51794

Decomposition temperature No data available

Viscosity 2,21 mPa*s @ 20 °C

Method ASTM D445, dynamic

Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

9.2. Other information

Molecular weight 60,10

Molecular formula C₃H₈O

Refractive index 1,383-1.385 @ 20 °C

Heat of combustion 2021 kJ/mol @ 25 °C (77 °F)

Surface tension 70,8 mN/m (1 g/l @ 20°C (68°F)), OECD 115

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

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strong oxidizing agents, strong acids.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact

Acute toxicity				
Propan-1-ol (71-23-8)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	1870-8000 mg/kg	rat	Weight of evidence
Inhalative	LC50	> 33,8 mg/l (4 h)	rat, male/female	OECD 403
Dermal	LD50	4032 mg/kg	rabbit	OECD 402

Propan-1-ol, CAS: 71-23-8

Assessment

Based on available data, the classification criteria are not met for:

Acute oral toxicity

Acute dermal toxicity

Acute inhalation toxicity

Irritation and corrosion				
Propan-1-ol (71-23-8)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	No skin irritation	OECD 404	
Eyes	rabbit	severe irritation	OECD 405	

Propan-1-ol, CAS: 71-23-8

Assessment

The available data lead to the classification given in section 2

For respiratory irritation, no data are available

Sensitization				
Propan-1-ol (71-23-8)				
Target Organ Effects	Species	Evaluation	Method	
Skin	mouse	not sensitizing	MEST	
Skin	guinea pig	not sensitizing	OECD 406	

Propan-1-ol, CAS: 71-23-8

Assessment

Based on available data, the classification criteria are not met for:

Skin sensitization

For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity				
Propan-1-ol (71-23-8)				
Type	Dose	Species	Method	
Subacute toxicity	NOAEC: 1000 ppm	rat, male/female	Inhalation	

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Propan-1-ol, CAS: 71-23-8

Assessment

Based on available data, the classification criteria are not met for:
STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Propan-1-ol (71-23-8)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		V79 cells, Chinese hamster	negative	OECD 473 (Chromosomal Aberration)	In vitro study
Reproductive toxicity	NOEC 8730 mg/m ³	rat, male/female		Inhalation OECD 413	
Developmental Toxicity	NOAEC: 8730 mg/m ³	rat		OECD 414, Inhalative	
Developmental Toxicity	LOAEC: 17460 mg/m ³	rat		OECD 414, Inhalative	

Propan-1-ol, CAS: 71-23-8

CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

Evaluation

In vitro tests did not show mutagenic effects

Propan-1-ol, CAS: 71-23-8

Main symptoms

central nervous system depression, gastrointestinal discomfort, dizziness, drowsiness, nausea, weakness, abdominal pain, vomiting.

Target Organ Systemic Toxicant - Single exposure

The available data lead to the classification given in section 2

Target Organ Systemic Toxicant - Repeated exposure

Based on available data, the classification criteria are not met for:

STOT RE

Aspiration toxicity

Based on the viscosity a potential aspiration hazard cannot be excluded

Other adverse effects

Components of the product may be absorbed into the body by inhalation and ingestion.

Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:

<http://echa.europa.eu/information-on-chemicals/registered-substances>.

SECTION 12: Ecological information

12.1. Toxicity

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Acute aquatic toxicity			
Propan-1-ol (71-23-8)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 3644 mg/l	DIN 38412, part 11
Gammarus pulex	48h	LC50: 1000 mg/l	
Pseudokirchneriella subcapitata	48h	EC50: 9170 mg/l (Growth rate)	
Chlorella pyrenoidosa	48h	NOEC: 1150 mg/l	Growth rate
Pimephales promelas (fathead minnow)	96h	LC50: 4555 mg/l	OECD 203
Activated sludge (domestic)	3 h	IC50: > 1000 mg/l	OECD 209

12.2. Persistence and degradability

Propan-1-ol, CAS: 71-23-8

Biodegradation

75 % (20 d), Readily biodegradable, Sewage, domestic, aerobic, non-adapted, Closed Bottle test.

Abiotic Degradation		
Propan-1-ol (71-23-8)		
Type	Result	Method
Hydrolysis	not expected	
Photolysis	not expected	

12.3. Bioaccumulative potential

Propan-1-ol (71-23-8)		
Type	Result	Method
log Pow	0,2	measured, OECD 117
BCF	0,88	calculated

12.4. Mobility in soil

Propan-1-ol (71-23-8)		
Type	Result	Method
Surface tension	70,8 mN/m (1 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	log Koc: 0,633	calculated
Distribution to environmental compartments	Air: 3,87% Soil: 3,87% % Water: 96,13%	

12.5. Results of PBT and vPvB assessment

Propan-1-ol, CAS: 71-23-8

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

Propan-1-ol, CAS: 71-23-8

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No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Hazardous waste according to European Waste Catalogue (EWC)

Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

ADR/RID

14.1. UN number	UN 1274
14.2. UN proper shipping name	n-Propanol
14.3. Transport hazard class(es)	3
14.4. Packing group	III
14.5. Environmental hazards	no
14.6. Special precautions for user	
ADR Tunnel restriction code	(D/E)
Classification Code	F1
Hazard Number	30

ADN

ADN: Container and Tanker

14.1. UN number	UN 1274
14.2. UN proper shipping name	n-Propanol
14.3. Transport hazard class(es)	3
14.4. Packing group	III
14.5. Environmental hazards	no
14.6. Special precautions for user	
Classification Code	F1
Hazard Number	30

ICAO-TI / IATA-DGR

14.1. UN number	UN 1274
14.2. UN proper shipping name	n-Propanol
14.3. Transport hazard class(es)	3
14.4. Packing group	III
14.5. Environmental hazards	no

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14.6. Special precautions for user no data available

IMDG

14.1. UN number UN 1274
14.2. UN proper shipping name n-Propanol
14.3. Transport hazard class(es) 3
14.4. Packing group III
14.5. Environmental hazards no
14.6. Special precautions for user EmS F-E, S-D
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Product name n-Propyl alcohol
Ship type 3
Pollution category Y

SECTION 15: Regulatory information

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

Regulation 1272/2008, Annex VI

Propan-1-ol, CAS: 71-23-8

Classification Flam. Liq. 2; H225
Eye Dam. 1; H318
STOT SE 3; H336
Hazard pictograms GHS02 Flame
GHS05 Corrosion
GHS07 Exclamation mark
Signal word Danger
Hazard statements H225, H318, H336

DI 2012/18/EU (Seveso III)

Category Annex I, part 1:
P5a - c; depending on conditions

DI 1999/13/EC (VOC Guideline)

Component	Status
Propan-1-ol CAS: 71-23-8	regulated

International Inventories

Propan-1-ol, CAS: 71-23-8

AICS (AU)
DSL (CA)
IECSC (CN)

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EC-No. 2007469 (EU)
ENCS (2)-207 (JP)
ISHL (2)-207 (JP)
KECI KE-29362 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

National regulatory information Great Britain

Releases to air (Pollution Inventory Substances)
not subject

Releases to water (Pollution Inventory Substances)
not subject

Releases to sewer (Pollution Inventory Substances)
not subject

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758 ***

Component	Status
Propan-1-ol CAS: 71-23-8	The substance is/will be pre-registered.***

For details and further information please refer to the original regulation***

15.2. Chemical safety assessment

The Chemical Safety Report (CSR) has been generated. For Exposure Scenarios see the annex.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H225: Highly flammable liquid and vapour.
H318: Causes serious eye damage.
H336: May cause drowsiness or dizziness.

Abbreviations

A table of terms and abbreviations can be found under the following link:
http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf

Training advice

For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet

Changes against the previous version are marked by ***. Observe national and local legal requirements. For more



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information, other material safety data sheets or technical data sheets please consult the OQ homepage (www.chemicals.oq.com).

Disclaimer

For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OQ makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet

Annex to the extended Safety Data Sheet (eSDS)

General information

Acute Health Hazard:

Risks resulting from short-term exposure are covered by the long-term exposure assessment

In the absence of environmental hazards no environmental risk assessment was carried out

For consumer applications in the following usage areas please contact OQ (sc.psq@oq.com):

Uses in coatings

lubricants

Consumer uses e.g. as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation

Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described below and you are unsure if they are also safe

Exposure scenario identification

- 1 Industrial use resulting in manufacture of another substance (use of intermediates)
- 2 Formulation & (re)packing of substances and mixtures
- 3 Distribution of substance
- 4 Distribution of substance
- 5 Uses in coatings
- 6 Uses in coatings
- 7 Use in Cleaning Products
- 8 Use in Cleaning Products
- 9 lubricants
- 10 lubricants
- 11 Metal working fluids / rolling oils
- 12 Metal working fluids / rolling oils
- 13 Use in laboratories
- 14 Use in laboratories

Number of the ES 1

Short title of the exposure scenario

Industrial use resulting in manufacture of another substance (use of

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intermediates)

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
SU9: Manufacture of fine chemicals

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)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Environmental release categories [ERC]

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Use as an intermediate (not related to Strictly Controlled Conditions). 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).

Further explanations

Industrial use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Number of the contributing scenario

2

Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

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Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 8a

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Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

6

Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario

7

Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

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Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d].

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 50.0830 ; EE(derm): 6.857
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.857
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.857

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00525
Proc 2	RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.18688 ; RCR(derm): 0.05042
Proc 8a	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.04672 ; RCR(derm): 0.05042

Number of the ES 2

Short title of the exposure scenario

Formulation & (re)packing of substances and mixtures

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

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)

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

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

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

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facilities

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

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

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC2: Formulation of preparations (mixtures)

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Formulation of the substance and its mixtures in batch or continuous operations within closed or contained systems, including incidental exposures during storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities

Further explanations

Industrial use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Number of the contributing scenario

2

Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

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Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 5

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative);

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0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes activities are at ambient temperature (unless stated differently)

Assumes a good basic standard of occupational hygiene is implemented

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

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Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario

9

Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects. EE(inhal): Estimated inhalative long-term exposure [mg/m³];

EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d].

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 50.0830 ; EE(derm): 6.857
Proc 5	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.857
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.857
Proc 15	EE(inhal): 15.0420 ; EE(derm): 0.343

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

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Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.18688 ; RCR(derm): 0.05042
Proc 5	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8a	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.04672 ; RCR(derm): 0.05042
Proc 15	RCR(inhal): 0.09344 ; RCR(derm): 0.00252

Number of the ES 3

Short title of the exposure scenario

Distribution of substance

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

SU8: Manufacture of bulk, large scale chemicals (including petroleum products)

SU9: Manufacture of fine chemicals

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)

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

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

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

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

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC1: Manufacture of substances

ERC2: Formulation of preparations (mixtures)

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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.

Further explanations

Industrial use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

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Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

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Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

5

Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

6

Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

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Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d].

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 50.0830 ; EE(derm): 6.857
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.857
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.857
Proc 15	EE(inhal): 25.0420 ; EE(derm): 0.343

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Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.18688 ; RCR(derm): 0.05042
Proc 8a	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.04672 ; RCR(derm): 0.05042
Proc 15	RCR(inhal): 0.09344 ; RCR(derm): 0.00252

Number of the ES 4

Short title of the exposure scenario

Distribution of substance

List of use descriptors

Sector of uses [SU]

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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)

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

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

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

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

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC1: Manufacture of substances

ERC2: Formulation of preparations (mixtures)

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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.

Further explanations

Professional use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling worker exposure for

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PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 2

Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 3

Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4



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Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

5

Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario

6

Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

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Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 50.0830 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 125.2080 ; EE(derm): 1.371
Proc 8a	EE(inhal): 15.0250 ; EE(derm): 2.743
Proc 8b	EE(inhal): 75.1248 ; EE(derm): 6.857
Proc 9	EE(inhal): 150.2502 ; EE(derm): 6.857
Proc 15	EE(inhal): 25.0420 ; EE(derm): 0.343

Risk characterisation

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RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.18688 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.46719 ; RCR(derm): 0.01008
Proc 8a	RCR(inhal): 0.05606 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.28032 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.56064 ; RCR(derm): 0.05042
Proc 15	RCR(inhal): 0.09344 ; RCR(derm): 0.00252

Number of the ES 5

Short title of the exposure scenario

Uses in coatings

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

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)

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

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC7: Industrial spraying

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

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

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

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Covers the use in coatings (paints, inks, adhesives, etc) within closed or contained systems including incidental exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application activities and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Further explanations

Industrial use

Contributing Scenarios

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Number of the contributing scenario 1
Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

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Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 5

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative);

0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 7

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

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Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m².

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Use suitable eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 9
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

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Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario

10

Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

11

Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative);

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0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 12
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.340
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.370
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.340
Proc 4	EE(inhal): 50.0830 ; EE(derm): 6.860
Proc 5	EE(inhal): 12.5208 ; EE(derm): 2.740
Proc 7	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth)
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.740
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.860
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.860
Proc 10	EE(inhal): 12.5208 ; EE(derm): 5.490
Proc 13	EE(inhal): 12.5208 ; EE(derm): 2.740
Proc 15	EE(inhal): 25.0420 ; EE(derm): 0.340

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.18688 ; RCR(derm): 0.05042
Proc 5	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 7	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected
Proc 8a	RCR(inhal): 0.04672 ; RCR(derm): 0.02017

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Proc 8b	RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.04672 ; RCR(derm): 0.05042
Proc 10	RCR(inhal): 0.04672 ; RCR(derm): 0.04034
Proc 13	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 15	RCR(inhal): 0.09344 ; RCR(derm): 0.00252

Number of the ES 6

Short title of the exposure scenario

Uses in coatings

List of use descriptors

Sector of uses [SU]

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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)

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

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

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

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

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

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC15: Use as laboratory reagent

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

Environmental release categories [ERC]

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix

ERC8d: Wide dispersive outdoor use of processing aids in open systems

ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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

Further explanations

Professional use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling worker exposure for PROC 1

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Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

2

Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

3

Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

4

Contributing exposure scenario controlling worker exposure for

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PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 5

Contributing exposure scenario controlling worker exposure for PROC 5

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 6

Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario 7

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Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

8

Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

9

Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

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Number of the contributing scenario 10
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m2.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Use suitable eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 11
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

< 3 per shift

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Direction of application: Level. Direction of application: Downward.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Inspect and clean equipment regularly. Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 12
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

< 6 per shift

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

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Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide enhanced general ventilation by mechanical means. Direction of application: Level. Direction of application: Downward. Use long handled tools where possible.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear respiratory protection (Efficiency: 80 %) Alternatively: Use duration max. 1 h. Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 13
Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 14
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 15
Contributing exposure scenario controlling worker exposure for PROC 19

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

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Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to 1980 cm²

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 50.0830 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 125.2080 ; EE(derm): 1.371
Proc 5	EE(inhal): 150.2502 ; EE(derm): 2.743
Proc 8a	EE(inhal): 15.0250 ; EE(derm): 2.743
Proc 8b	EE(inhal): 75.1248 ; EE(derm): 6.857
Proc 9	EE(inhal): 150.2502 ; EE(derm): 6.857
Proc 10	EE(inhal): 25.0420 ; EE(derm): 5.486
Proc 11	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth) - Contributing Scenarios 10
	EE(inhal): 124.3300 ; EE(derm): 5.924 - Contributing Scenarios 11
	EE(inhal): 168.7400 ; EE(derm): 11.872 - Contributing Scenarios 12
Proc 13	EE(inhal): 25.0420 ; EE(derm): 0.343
Proc 15	EE(inhal): 150.2502 ; EE(derm): 28.286
Proc 19	EE(inhal): 150.2502 ; EE(derm): 28.286

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.18688 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.46719 ; RCR(derm): 0.01008
Proc 5	RCR(inhal): 0.56064 ; RCR(derm): 0.02017
Proc 8a	RCR(inhal): 0.05606 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.28032 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.56064 ; RCR(derm): 0.05042
Proc 10	RCR(inhal): 0.09344 ; RCR(derm): 0.00252
Proc 11	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected - Contributing Scenarios 10
	RCR(inhal): 0.46392 ; RCR(derm): 0.04356 - Contributing Scenarios 11
	RCR(inhal): 0.62963 ; RCR(derm): 0.08729 - Contributing Scenarios 12
Proc 13	RCR(inhal): 0.93437 ; RCR(derm): 0.02017
Proc 15	RCR(inhal): 0.09344 ; RCR(derm): 0.00252
Proc 19	RCR(inhal): 0.56064 ; RCR(derm): 0.20799

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Number of the ES 7

Short title of the exposure scenario

Use in Cleaning Products

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

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)

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

PROC7: Industrial spraying

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

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

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

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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.

Further explanations

Industrial use

Contributing Scenarios

Number of the contributing scenario 1

Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

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Use suitable eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 7

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m2.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Inspect and clean equipment regularly. Use suitable eye protection.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

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Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 9
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 10
Contributing exposure scenario controlling worker exposure for

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PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 50.0830 ; EE(derm): 6.857
Proc 7	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth)
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.857
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.857
Proc 10	EE(inhal): 12.5208 ; EE(derm): 5.486
Proc 13	EE(inhal): 12.5208 ; EE(derm): 2.743

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.18688 ; RCR(derm): 0.05042
Proc 7	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected
Proc 8a	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.04672 ; RCR(derm): 0.05042
Proc 10	RCR(inhal): 0.04672 ; RCR(derm): 0.04034
Proc 13	RCR(inhal): 0.04672 ; RCR(derm): 0.02017

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Number of the ES 8

Short title of the exposure scenario

Use in Cleaning Products

List of use descriptors

Sector of uses [SU]

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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)

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

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

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

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

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

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

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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).

Further explanations

Professional use

Contributing Scenarios

Number of the contributing scenario 1

Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

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Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

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Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 9
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m². Direction of application: Downward. Direction of application: Level.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 10
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

3 h per shift

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Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented
Assumes activities are at ambient temperature (unless stated differently)
Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Direction of application: Downward. Direction of application: Level.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario

11

Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

< 6 h per shift

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented
Assumes activities are at ambient temperature (unless stated differently)
Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide enhanced general ventilation by mechanical means. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Use long handled tools where possible.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear respiratory protection (Efficiency: 80 %) Alternatively: Use duration max. 1 h. Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario

12

Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented
Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

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Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 50.0830 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 125.2080 ; EE(derm): 1.371
Proc 8a	EE(inhal): 15.0250 ; EE(derm): 2.743
Proc 8b	EE(inhal): 75.1248 ; EE(derm): 6.857
Proc 9	EE(inhal): 150.2502 ; EE(derm): 6.857
Proc 10	EE(inhal): 250.4170 ; EE(derm): 5.486
Proc 11	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth) - Contributing Scenarios 9 EE(inhal): 124.3300 ; EE(derm): 5.924 - Contributing Scenarios 10 EE(inhal): 168.7400 ; EE(derm): 11.872 - Contributing Scenarios 11
Proc 13	EE(inhal): 250.4120 ; EE(derm): 2.743

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.18688 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.46719 ; RCR(derm): 0.01008
Proc 8a	RCR(inhal): 0.05606 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.28032 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.56064 ; RCR(derm): 0.05042
Proc 10	RCR(inhal): 0.93439 ; RCR(derm): 0.04034
Proc 11	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected - Contributing Scenarios 9 RCR(inhal): 0.46392 ; RCR(derm): 0.04356 - Contributing Scenarios 10 RCR(inhal): 0.62963 ; RCR(derm): 0.08729 - Contributing Scenarios 11
Proc 13	RCR(inhal): 0.93437 ; RCR(derm): 0.02017

Number of the ES 9

Short title of the exposure scenario

lubricants

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

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)

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

PROC7: Industrial spraying

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

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facilities

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

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

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

Environmental release categories [ERC]

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC7: Industrial use of substances in closed systems

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Covers the use of 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.

Further explanations

Industrial use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling worker exposure for PROC 1

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Number of the contributing scenario

2

Contributing exposure scenario controlling worker exposure for PROC 2

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

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Use suitable eye protection.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 7

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m².

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Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Use suitable eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

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Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative);

0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario

9

Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative);

0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

10

Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative);

0 % (dermal).

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

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Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 11
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 12
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure > 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 50.0830 ; EE(derm): 6.857
Proc 7	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth)
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.857
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.587
Proc 10	EE(inhal): 12.5208 ; EE(derm): 5.486

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Proc 13 EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 17 EE(inhal): 125.2080 ; EE(derm): 5.486 - Contributing Scenarios 11
EE(inhal): 250.4170 ; EE(derm): 5.486 - Contributing Scenarios 12

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1 RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2 RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3 RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4 RCR(inhal): 0.18688 ; RCR(derm): 0.05042
Proc 7 RCR(inhal): 0.00000 ; RCR(derm): no exposure expected
Proc 8a RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8b RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9 RCR(inhal): 0.04672 ; RCR(derm): 0.05042
Proc 10 RCR(inhal): 0.04672 ; RCR(derm): 0.04034
Proc 13 RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 17 RCR(inhal): 0.46719 ; RCR(derm): 0.04034 - Contributing Scenarios 11
RCR(inhal): 0.93439 ; RCR(derm): 0.04034 - Contributing Scenarios 12

Number of the ES 10

Short title of the exposure scenario

lubricants

List of use descriptors

Sector of uses [SU]

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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)

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

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

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

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

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

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

Product characteristics

Refer to attached safety data sheets

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Processes and activities covered by the exposure scenario

Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Further explanations

Professional use

Contributing Scenarios

Number of the contributing scenario	1
Contributing exposure scenario controlling worker exposure for PROC 1	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario	2
Contributing exposure scenario controlling worker exposure for PROC 2	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario	3
Contributing exposure scenario controlling worker exposure for PROC 3	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

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Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4

Contributing exposure scenario controlling worker exposure for PROC 4

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 5

Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario 6

Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

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Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m².

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Inspect and clean equipment regularly. Use suitable eye protection.

Number of the contributing scenario 9
Contributing exposure scenario controlling worker exposure for PROC 11

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Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Exposure time per day: 3 h/d

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Direction of application: Downward. Direction of application: Level.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario

10

Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Exposure time per day: 6 h/d

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide enhanced general ventilation by mechanical means. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Use long handled tools where possible. Direction of application: Downward. Direction of application: Level.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear respiratory protection (Efficiency: 80 %) Alternatively: Use duration max. 1 h. Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario

11

Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ectoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

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Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 12
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal). If no adequate ventilation is available, avoid carrying out operations for more than 1 h.

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 13
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure > 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal). If no adequate ventilation is available, avoid carrying out operations for more than 1 h.

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm):

Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1

EE(inhal): 0.0250 ; EE(derm): 0.343

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Proc 2	EE(inhal): 50.0830 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 4	EE(inhal): 125.2080 ; EE(derm): 1.371
Proc 8a	EE(inhal): 15.0250 ; EE(derm): 2.743
Proc 8b	EE(inhal): 75.1248 ; EE(derm): 6.857
Proc 9	EE(inhal): 150.2502 ; EE(derm): 6.857
Proc 11	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth) - Contributing Scenarios 8 EE(inhal): 124.3300 ; EE(derm): 5.924 - Contributing Scenarios 9 EE(inhal): 168.7400 ; EE(derm): 11.872 - Contributing Scenarios 10
Proc 13	EE(inhal): 250.4170 ; EE(derm): 2.743
Proc 17	EE(inhal): 50.0833 ; EE(derm): 5.486 - Contributing Scenarios 12 EE(inhal): 125.2083 ; EE(derm): 27.429 - Contributing Scenarios 13

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.18688 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 4	RCR(inhal): 0.46719 ; RCR(derm): 0.01008
Proc 8a	RCR(inhal): 0.05606 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.28032 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.56064 ; RCR(derm): 0.05042
Proc 11	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected - Contributing Scenarios 8 RCR(inhal): 0.46392 ; RCR(derm): 0.04356 - Contributing Scenarios 9 RCR(inhal): 0.62963 ; RCR(derm): 0.08729 - Contributing Scenarios 10
Proc 13	RCR(inhal): 0.93439 ; RCR(derm): 0.02017
Proc 17	RCR(inhal): 0.18688 ; RCR(derm): 0.04034 - Contributing Scenarios 12 RCR(inhal): 0.46720 ; RCR(derm): 0.20168 - Contributing Scenarios 13

Number of the ES 11

Short title of the exposure scenario

Metal working fluids / rolling oils

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

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)

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC7: Industrial spraying

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

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

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

PROC10: Roller application or brushing

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PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process

Environmental release categories [ERC]

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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.

Further explanations

Industrial use

Contributing Scenarios

Number of the contributing scenario	1
Contributing exposure scenario controlling worker exposure for PROC 1	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Number of the contributing scenario	2
Contributing exposure scenario controlling worker exposure for PROC 2	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

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Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 3

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 5

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 7

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

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Use in ventilated spray booths only. Distance from source: > 1 m2.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Use suitable eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 97 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

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Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Use suitable eye protection.

Number of the contributing scenario

9

Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

10

Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 11
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves and eye/face protection.

Number of the contributing scenario 12
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure > 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 25.0420 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 5	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 7	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth)
Proc 8a	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 8b	EE(inhal): 3.7562 ; EE(derm): 6.857
Proc 9	EE(inhal): 12.5208 ; EE(derm): 6.857

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Proc 10	EE(inhal): 12.5208 ; EE(derm): 5.486
Proc 13	EE(inhal): 12.5208 ; EE(derm): 2.743
Proc 17	EE(inhal): 125.2080 ; EE(derm): 5.486 - Contributing Scenarios 11 EE(inhal): 250.4170 ; EE(derm): 5.486 - Contributing Scenarios 12

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.09344 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 5	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 7	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected
Proc 8a	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.01402 ; RCR(derm): 0.05042
Proc 9	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 10	RCR(inhal): 0.04672 ; RCR(derm): 0.04034
Proc 13	RCR(inhal): 0.04672 ; RCR(derm): 0.02017
Proc 17	RCR(inhal): 0.46719 ; RCR(derm): 0.04034 - Contributing Scenarios 11 RCR(inhal): 0.93439 ; RCR(derm): 0.04034 - Contributing Scenarios 12

Number of the ES 12

Short title of the exposure scenario

Metal working fluids / rolling oils

List of use descriptors

Sector of uses [SU]

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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)

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

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

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

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC17: Lubrication at high energy conditions and in partly open process

Environmental release categories [ERC]

ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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Covers the use in formulated MWFs (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.

Further explanations

Professional use

Contributing Scenarios

Number of the contributing scenario	1
Contributing exposure scenario controlling worker exposure for PROC 1	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario	2
Contributing exposure scenario controlling worker exposure for PROC 2	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario	3
Contributing exposure scenario controlling worker exposure for PROC 3	

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

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Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario

4

Contributing exposure scenario controlling worker exposure for PROC 5

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

5

Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario

6

Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

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Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Avoid carrying out activities involving exposure for more than 4 hours

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Number of the contributing scenario 7

Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 8

Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Use in ventilated spray booths only. Distance from source: > 1 m².

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Inspect and clean equipment regularly. Use suitable eye protection.

Number of the contributing scenario 9

Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

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Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Exposure time per day: 3 h/d

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Direction of application: Downward. Direction of application: Level.

Organisational measures to prevent /limit releases, dispersion and exposure

Clean equipment and the work area every day

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

Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 10
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification

Assessment tool used: StoffenManager RiskOfDerm

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

Exposure time per day: 6/d

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide enhanced general ventilation by mechanical means. Effectiveness of LEV (local exhaust ventilation): 47 % (inhalative); 0 % (dermal). Use long handled tools where possible. Direction of application: Downward. Direction of application: Level.

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

Wear respiratory protection (Efficiency: 80 %) Alternatively: Use duration max. 1 h. Wear suitable gloves (tested to EN374) and eye protection. Inspect and clean equipment regularly.

Number of the contributing scenario 11
Contributing exposure scenario controlling worker exposure for PROC 13

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

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Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 12
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal). If no adequate ventilation is available, avoid carrying out operations for more than 1 h.

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 13
Contributing exposure scenario controlling worker exposure for PROC 17

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure > 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to 2 hands (960 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal). If no adequate ventilation is available, avoid carrying out operations for more than 1 h.

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

Wear suitable gloves (tested to EN374) and eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.0250 ; EE(derm): 0.343
Proc 2	EE(inhal): 50.0830 ; EE(derm): 1.371
Proc 3	EE(inhal): 62.6040 ; EE(derm): 0.343
Proc 5	EE(inhal): 150.2502 ; EE(derm): 2.743

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Proc 8a	EE(inhal): 15.0250 ; EE(derm): 2.743
Proc 8b	EE(inhal): 75.1248 ; EE(derm): 6.857
Proc 10	EE(inhal): 250.4170 ; EE(derm): 5.486
Proc 11	EE(inhal): 0.0000 ; EE(derm): no exposure expected (spraying booth) - Contributing Scenarios 8 EE(inhal): 124.3300 ; EE(derm): 0.461 - Contributing Scenarios 9 EE(inhal): 168.7400 ; EE(derm): 0.924 - Contributing Scenarios 10
Proc 13	EE(inhal): 250.4170 ; EE(derm): 2.743
Proc 17	EE(inhal): 50.0833 ; EE(derm): 5.486 - Contributing Scenarios 12 EE(inhal): 125.2083 ; EE(derm): 27.429 - Contributing Scenarios 13

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.00009 ; RCR(derm): 0.00252
Proc 2	RCR(inhal): 0.18688 ; RCR(derm): 0.01008
Proc 3	RCR(inhal): 0.23360 ; RCR(derm): 0.00252
Proc 5	RCR(inhal): 0.56064 ; RCR(derm): 0.02017
Proc 8a	RCR(inhal): 0.05606 ; RCR(derm): 0.02017
Proc 8b	RCR(inhal): 0.28032 ; RCR(derm): 0.05042
Proc 10	RCR(inhal): 0.93439 ; RCR(derm): 0.04034
Proc 11	RCR(inhal): 0.00000 ; RCR(derm): no exposure expected - Contributing Scenarios 8 RCR(inhal): 0.46392 ; RCR(derm): 0.04356 - Contributing Scenarios 9 RCR(inhal): 0.62963 ; RCR(derm): 0.08729 - Contributing Scenarios 10
Proc 13	RCR(inhal): 0.93439 ; RCR(derm): 0.02017
Proc 17	RCR(inhal): 0.18688 ; RCR(derm): 0.04034 - Contributing Scenarios 12 RCR(inhal): 0.46720 ; RCR(derm): 0.20168 - Contributing Scenarios 13

Number of the ES 13

Short title of the exposure scenario

Use in laboratories

List of use descriptors

Sector of uses [SU]

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]

PROC10: Roller application or brushing

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Use of the substance within laboratory settings, including material transfers and equipment cleaning

Further explanations

Industrial use

Contributing Scenarios

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Number of the contributing scenario 1
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 2 hands (480 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Assumes activities are at ambient temperature (unless stated differently)

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 10
Proc 15

EE(inhal): 12.5208 ; EE(derm): 27.429
EE(inhal): 25.0420 ; EE(derm): 0.343

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio;
total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for

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short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 10 RCR(inhal): 0.04672 ; RCR(derm): 0.04034
Proc 15 RCR(inhal): 0.09344 ; RCR(derm): 0.00252

Number of the ES 14

Short title of the exposure scenario

Use in laboratories

List of use descriptors

Sector of uses [SU]

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process categories [PROC]

PROC10: Roller application or brushing
PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Use of the substance within laboratory settings, including material transfers and equipment cleaning

Further explanations

Professional use

Contributing Scenarios

Number of the contributing scenario 1

Contributing exposure scenario controlling worker exposure for PROC 10

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Wear suitable gloves (tested to EN374) and eye protection.

Number of the contributing scenario 2

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Contributing exposure scenario controlling worker exposure for PROC 15

Further specification

Assessment tool used: Ecetoc TRA V2 modified

Product characteristics

Liquid, vapour pressure 0,5 - 10 kPa at STP

Covers percentage substance in the product up to 100 % (unless stated differently)

Frequency and duration of use

8 h (full shift)

Human factors not influenced by risk management

Area potentially exposed: corresponds to palm of 1 hand (240 cm²)

Other given operational conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented

Indoor and outdoor use

Assumes activities are at ambient temperature (unless stated differently)

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

Use suitable eye protection.

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 10	EE(inhal): 250.4170 ; EE(derm): 27.429
Proc 15	EE(inhal): 25.0420 ; EE(derm): 0.343

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 10	RCR(inhal): 0.93439 ; RCR(derm): 0.04034
Proc 15	RCR(inhal): 0.09344 ; RCR(derm): 0.00252