



Methylcyclohexane

Version 1.7

Revision Date 2017-12-18

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

Product information

Product Name : Methylcyclohexane
 Material : 1098852, 1021714, 1021712, 1028351, 1021711, 1024851,
 1028352, 1024850, 1021713

EC-No.Registration number

| Chemical name | CAS-No. EC-No. Index No. | Legal Entity Registration number |
|-------------------|---------------------------------------|-------------------------------------|
| Methylcyclohexane | 108-87-2 203-624-3 601-018-00-7 | 01-2119556887-18-XXXX |

Relevant Identified Uses Supported : Solvent in other applications
 Use in polymer processing – professional, Solvent
 Use in coatings – professional, Solvent
 Lubricants - Professional, Solvent
 Use as a cleaning agent – professional, Solvent
 Solvent in other applications- Professional

Company : Chevron Phillips Chemical Company LP
 Specialty Chemicals
 10001 Six Pines Drive
 The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
 Airport Plaza (Stockholm Building)
 Leonardo Da Vincilaan 19
 1831 Diegem
 Belgium

SDS Requests: (800) 852-5530
 Technical Information: (832) 813-4862
 Responsible Party: Product Safety Group
 Email:sds@cpchem.com

Emergency telephone:

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Health:

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group

E-mail address : SDS@CPChem.com

Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Aspiration hazard, Category 1

H304:

May be fatal if swallowed and enters airways.

Skin irritation, Category 2

H315:

Causes skin irritation.

Flammable liquids, Category 2

H225:

Highly flammable liquid and vapor.

Specific target organ systemic toxicity -
single exposure, Category 3, Central
nervous system

H336:

May cause drowsiness or dizziness.

Acute toxicity, Category 1

H400:

Very toxic to aquatic life.

Chronic aquatic toxicity, Category 2

H411:

Toxic to aquatic life with long lasting effects.

Label elements**Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms



Signal Word

: Danger

Hazard Statements

: H225
H304

Highly flammable liquid and vapor.

May be fatal if swallowed and enters
airways.

H315

Causes skin irritation.

H336

May cause drowsiness or dizziness.

H411

Toxic to aquatic life with long lasting effects.

Precautionary Statements

: **Prevention:**

P210

Keep away from heat/sparks/open
flames/hot surfaces. No smoking.

P233

Keep container tightly closed.

P240

Ground/bond container and receiving
equipment.

P243

Take precautionary measures against static

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P273
P280

discharge.
Avoid release to the environment.
Wear protective gloves/ protective clothing/
eye protection/ face protection.

SECTION 3: Composition/information on ingredients

Synonyms : Cyclohexylmethane
Hexahydrotoluene
MCH
Methylcyclohexane (Pure Grade)

Molecular formula : C7H14

Mixtures**Hazardous ingredients**

| Chemical name | CAS-No. EC-No. Index No. | Classification (REGULATION (EC) No 1272/2008) | Concentration [wt%] |
|-------------------|---------------------------------------|---|------------------------|
| Methylcyclohexane | 108-87-2 203-624-3 601-018-00-7 | Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 | 99,8 - 100 |

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

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SECTION 5: Firefighting measures

| | | |
|--|---|--|
| Flash point | : | -5,5 °C (22,1 °F) Method: Tagliabue Open Cup |
| Autoignition temperature | : | 285 °C (545 °F) |
| Suitable extinguishing media | : | Alcohol-resistant foam. Carbon dioxide (CO ₂). Dry chemical. |
| Unsuitable extinguishing media | : | High volume water jet. |
| Specific hazards during fire fighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Special protective equipment for fire-fighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |
| Further information | : | Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers. |
| Fire and explosion protection | : | Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. |
| Hazardous decomposition products | : | Hydrocarbons. Carbon oxides. |

SECTION 6: Accidental release measures

| | | |
|---------------------------|---|---|
| Personal precautions | : | Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. |
| Environmental precautions | : | Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods for cleaning up | : | Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). |

SECTION 7: Handling and storage**Handling**

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Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters****SK**

| Zložky | Podstata | Hodnota | Kontrolné parametre | Poznámka |
|-------------------|----------|-----------------|----------------------------------|----------|
| Methylcyclohexane | SK OEL | NPEL priemerný | 200 ppm, 810 mg/m ³ | |
| | SK OEL | NPEL krátkodobý | 400 ppm, 1.620 mg/m ³ | |

SI

| Sestavine | Osnova | Vrednost | Parametri nadzora | Pripomba |
|-------------------|--------|----------|----------------------------------|----------|
| Methylcyclohexane | SI OEL | MV | 500 ppm, 2.000 mg/m ³ | |

PT

| Componentes | Bases | Valor | Parâmetros de controlo | Nota |
|-------------------|--------|--------|------------------------|----------------------------------|
| Methylcyclohexane | PT OEL | VLE-MP | 400 ppm, | irritação do TRS, afeção do SNC, |

afeção do SNC afeção do sistema nervoso central
irritação do TRS irritação do trato respiratório superior
TRS

PL

| Składniki | Podstawa | Wartość | Parametry dotyczące kontroli | Uwaga |
|-------------------|----------|---------|------------------------------|-------|
| Methylcyclohexane | PL NDS | NDS | 1.600 mg/m ³ | |
| | PL NDS | NDSch | 3.000 mg/m ³ | |

NO

| Komponenter | Grunnlag | Verdi | Kontrollparametrer | Nota |
|-------------------|---------------------|-------|--------------------------------|------|
| Methylcyclohexane | FOR-2011-12-06-1358 | TWA | 200 ppm, 800 mg/m ³ | |

LT

| Komponentai | Pagrindas, bazė | Vertė | Kontrolės parametrai | Pastaba |
|-------------------|-----------------|-------|----------------------|---------|
| Methylcyclohexane | LT OEL | IPRD | 50 mg/m ³ | |

IE

| Ingredients | Basis | Value | Control parameters | Note |
|-------------------|--------|--------------------|----------------------------------|------|
| Methylcyclohexane | IE OEL | OELV - 8 hrs (TWA) | 400 ppm, 1.600 mg/m ³ | |

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GR

| Συστατικά | Βάση | Τιμή | Παράμετροι ελέγχου | Σημείωση |
|-------------------|--------|------|----------------------------------|----------|
| Methylcyclohexane | GR OEL | TWA | 500 ppm, 2.000 mg/m ³ | |
| | GR OEL | STEL | 500 ppm, 2.000 mg/m ³ | |

FR

| Composants | Base | Valeur | Paramètres de contrôle | Note |
|------------------------------------|--------|--------|----------------------------------|---------|
| Methylcyclohexane | FR VLE | VME | 400 ppm, 1.600 mg/m ³ | normal, |
| normal Valeurs limites indicatives | | | | |

FI

| Aineosat | Peruste | Arvo | Valvontaa koskevat muuttujat | Huomautus |
|-------------------|---------|------------------|----------------------------------|-----------|
| Methylcyclohexane | FI OEL | HTP-arvot 8h | 400 ppm, 1.600 mg/m ³ | |
| | FI OEL | HTP-arvot 15 min | 500 ppm, 2.000 mg/m ³ | |

ES

| Componentes | Base | Valor | Parámetros de control | Nota |
|-------------------|--------|--------|----------------------------------|------|
| Methylcyclohexane | ES VLA | VLA-ED | 400 ppm, 1.630 mg/m ³ | |

EE

| Komponendid, osad | Alused | Väärtus | Kontrolliparameetrid | Märkused |
|-------------------|--------|----------|----------------------------------|----------|
| Methylcyclohexane | EE OEL | Piirnorm | 400 ppm, 1.600 mg/m ³ | |

DK

| Komponenter | Basis | Værdi | Kontrolparametre | Note |
|-------------------|--------|-------|--------------------------------|------|
| Methylcyclohexane | DK OEL | GV | 200 ppm, 805 mg/m ³ | |

DE

| Inhaltsstoffe | Grundlage | Wert | Zu überwachende Parameter | Bemerkung |
|--|-------------|------|--------------------------------|-----------|
| Methylcyclohexane | DE TRGS 900 | AGW | 200 ppm, 810 mg/m ³ | DFG, |
| DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission) | | | | |

CZ

| Složky | Základ | Hodnota | Kontrolní parametry | Poznámka |
|---|--------|---------|-------------------------|----------|
| Methylcyclohexane | CZ OEL | PEL | 1.500 mg/m ³ | I, |
| | CZ OEL | NPK-P | 2.000 mg/m ³ | I, |
| I dráždí sliznice (oči, dýchací cesty) resp. kůži | | | | |

CH

| Inhaltsstoffe | Grundlage | Wert | Zu überwachende Parameter | Bemerkung |
|--|-----------|----------|----------------------------------|--------------|
| Methylcyclohexane | CH SUVA | MAK-Wert | 400 ppm, 1.600 mg/m ³ | NIOSH, INRS, |
| | CH SUVA | KZGW | 800 ppm, 3.200 mg/m ³ | NIOSH, INRS, |
| INRS Institut National de Recherche et de Sécurité pour la prévention des accidents du travail et des maladies professionnelles NIOSH National Institute for Occupational Safety and Health | | | | |

BE

| Bestanddelen | Basis | Waarde | Controleparameters | Opmerking |
|-------------------|--------|----------|----------------------------------|-----------|
| Methylcyclohexane | BE OEL | TGG 8 hr | 400 ppm, 1.633 mg/m ³ | |

AT

| Inhaltsstoffe | Grundlage | Wert | Zu überwachende Parameter | Bemerkung |
|-------------------|-----------|---------|------------------------------------|-----------|
| Methylcyclohexane | AT OEL | TRK-TMW | 400 ppm, 1.600 mg/m ³ | |
| | AT OEL | TRK-KZW | 1.600 ppm, 6.400 mg/m ³ | |

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Systemic effects
Value: 64,3 mg/m³

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Acute effects
Value: 1354,6 mg/m³

DNEL : End Use: Workers
Routes of exposure: Skin contact

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Potential health effects: Systemic effects
Value: 1,7 mg/kg

| | | |
|------|---|--|
| PNEC | : | Fresh water Value: 0,00326 mg/l |
| PNEC | : | Marine water Value: 0,000326 mg/l |
| PNEC | : | Fresh water sediment Value: 0,088 mg/kg |
| PNEC | : | Marine sediment Value: 0,0088 mg/kg |
| PNEC | : | Soil Value: 0,127 mg/kg |

Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

| | | |
|--------------------------|---|--|
| Respiratory protection | : | Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection. |
| Hand protection | : | The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. |
| Eye protection | : | Eye wash bottle with pure water. Tightly fitting safety goggles. |
| Skin and body protection | : | Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant protective clothing. Footwear protecting against chemicals. |

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Hygiene measures : When using do not eat or drink. When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

Form : Liquid
Physical state : Liquid
Color : Colorless
Odor : Mild

Safety data

Flash point : -5,5 °C (22,1 °F)
Method: Tagliabue Open Cup

Lower explosion limit : 1,2 %(V)

Upper explosion limit : 6,7 %(V)

Oxidizing properties : no

Autoignition temperature : 285 °C (545 °F)

Molecular formula : C7H14

Molecular weight : 98,21 g/mol

pH : No data available

Freezing point : -127 °C (-197 °F)

Boiling point/boiling range : 100,4 °C (212,7 °F)

Vapor pressure : 1,60 PSI
at 37,8 °C (100,0 °F)

Relative density : 0,774
at 15,6 °C (60,1 °F)

Density : 771,7 g/l

Water solubility : Negligible

Viscosity, dynamic : 0,732 cP

Relative vapor density : 3
(Air = 1.0)

Evaporation rate : 1

Percent volatile : > 99 %

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SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : Heat, flames and sparks.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous decomposition products : Hydrocarbons
Carbon oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Acute oral toxicity**

Methylcyclohexane : LD50: 4.000 - 4.500 mg/kg
Species: Rabbit

Acute inhalation toxicity

Methylcyclohexane : LC50: 41 mg/l
Exposure time: 2 h
Species: Mouse
Test atmosphere: vapor

Skin irritation

Methylcyclohexane : Skin irritation

Eye irritation

Methylcyclohexane : No eye irritation

Sensitization

Methylcyclohexane : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Methylcyclohexane : Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Exposure time: 28 d
Number of exposures: daily, 7d/wk
NOEL: 250 mg/kg

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Lowest observable effect level: 1.000 mg/kg
Method: OECD Guideline 422

Species: Rat, female
Sex: female
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Exposure time: 46 d
Number of exposures: daily, 7 d/wk
NOEL: 250 mg/kg
Lowest observable effect level: 1.000 mg/kg
Method: OECD Guideline 422

Reproductive toxicity

Methylcyclohexane

: Species: Rat
Sex: male
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Number of exposures: daily, 7 d/wk
Test period: 28
Method: OECD Guideline 422
NOAEL Parent: 1.000 mg/kg
NOAEL F1: 1.000 mg/kg

Species: Rat
Sex: female
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Number of exposures: daily, 7 d/wk
Test period: 46
Method: OECD Guideline 422
NOAEL Parent: 1.000 mg/kg
NOAEL F1: 1.000 mg/kg

Species: Rat
Sex: male and female
Application Route: inhalation (vapor)
Dose: 500, 2000, 7000 ppm
Number of exposures: daily, 7 d/wk
Test period: 28
Method: OECD Test Guideline 416
NOAEL Parent: 500 ppm
NOAEL F1: 500 ppm
NOAEL F2: 2000 ppm
Information given is based on data obtained from similar substances.

Developmental Toxicity

Methylcyclohexane

: Species: Rat
Application Route: Inhalation
Dose: 500, 2000, 7000 ppm
Number of exposures: 6 hr/d, 7 d/wk
Test period: GD 7 - 16
Method: OECD Guideline 414
NOAEL Teratogenicity: 7000 ppm
NOAEL Maternal: 500 ppm
Information given is based on data obtained from similar

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substances.

Species: Rabbit
 Application Route: Inhalation
 Dose: 500, 2000, 7000 ppm
 Number of exposures: 6 hr/d, 7 d/wk
 Test period: GD 6 - 18
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 500 ppm
 Information given is based on data obtained from similar substances.

**Methylcyclohexane
Aspiration toxicity**

: May be fatal if swallowed and enters airways.

CMR effects

Methylcyclohexane : Carcinogenicity: Not available
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
 Teratogenicity: Animal testing did not show any effects on fetal development.
 Reproductive toxicity: Animal testing did not show any effects on fertility.

**Methylcyclohexane
Further information**

: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information**Toxicity to fish**

Methylcyclohexane : LC50: 2,07 mg/l
 Exposure time: 96 h
 Species: Fish
 semi-static test

Toxicity to daphnia and other aquatic invertebrates

Methylcyclohexane : EC50: 0,326 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 semi-static test

Toxicity to algae

Methylcyclohexane : EC50: 0,134 mg/l
 Exposure time: 72 h
 Species: Pseudokirchneriella subcapitata (green algae)
 static test

M-Factor

methylcyclohexane : M-Factor (Acute Aquat. Tox.) 1

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M-Factor (Chron. Aquat. Tox.) 1

Toxicity to bacteria

Methylcyclohexane : IC50: 29 mg/l
Exposure time: 15 h
Growth inhibition

Bioaccumulation

Methylcyclohexane : Not classified due to data which are conclusive although insufficient for classification.

Biodegradability

Methylcyclohexane : aerobic
0 %
Testing period: 28 d
Method: OECD Test Guideline 301D

Ecotoxicology Assessment

Acute aquatic toxicity
Methylcyclohexane : Very toxic to aquatic life.

Chronic aquatic toxicity
Methylcyclohexane : Very toxic to aquatic life with long lasting effects.

Results of PBT assessment
Methylcyclohexane : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information : Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting

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torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN2296, METHYLCYCLOHEXANE, 3, II, MARINE POLLUTANT, (METHYLCYCLOHEXANE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN2296, METHYLCYCLOHEXANE, 3, II, (-5,5 °C), MARINE POLLUTANT, (METHYLCYCLOHEXANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN2296, METHYLCYCLOHEXANE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN2296, METHYLCYCLOHEXANE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Other information : Methylcyclohexane, S.T. 2, Cat. Y

SECTION 15: Regulatory information**National legislation****Chemical Safety Assessment****Ingredients** : methylcyclohexane

203-624-3

SDS Number:100000014163

13/56

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Major Accident Hazard Legislation : 96/82/EC Update: 2003
 Dangerous for the environment
 9b
 Quantity 1: 200 t
 Quantity 2: 500 t

: 96/82/EC Update: 2003
 Highly flammable
 7b
 Quantity 1: 5.000 t
 Quantity 2: 50.000 t

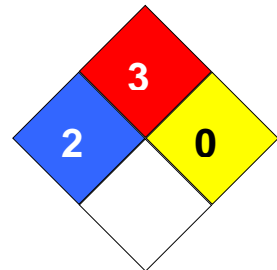
Water contaminating class (Germany) : WGK 2 water endangering

Notification status

Europe REACH : On the inventory, or in compliance with the inventory
 United States of America (USA) TSCA : On the inventory, or in compliance with the inventory
 Canada DSL : On the inventory, or in compliance with the inventory
 Australia AICS : On the inventory, or in compliance with the inventory
 New Zealand NZIoC : On the inventory, or in compliance with the inventory
 Japan ENCS : On the inventory, or in compliance with the inventory
 Korea KECI : On the inventory, or in compliance with the inventory
 Philippines PICCS : On the inventory, or in compliance with the inventory
 China IECSC : On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
 Fire Hazard: 3
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 34310

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

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| | | | |
|--------|--|-------|--|
| ACGIH | American Conference of Government Industrial Hygienists | LD50 | Lethal Dose 50% |
| AICS | Australia, Inventory of Chemical Substances | LOAEL | Lowest Observed Adverse Effect Level |
| DSL | Canada, Domestic Substances List | NFPA | National Fire Protection Agency |
| NDSL | Canada, Non-Domestic Substances List | NIOSH | National Institute for Occupational Safety & Health |
| CNS | Central Nervous System | NTP | National Toxicology Program |
| CAS | Chemical Abstract Service | NZIoC | New Zealand Inventory of Chemicals |
| EC50 | Effective Concentration | NOAEL | No Observable Adverse Effect Level |
| EC50 | Effective Concentration 50% | NOEC | No Observed Effect Concentration |
| EGEST | EOSCA Generic Exposure Scenario Tool | OSHA | Occupational Safety & Health Administration |
| EOSCA | European Oilfield Specialty Chemicals Association | PEL | Permissible Exposure Limit |
| EINECS | European Inventory of Existing Chemical Substances | PICCS | Philippines Inventory of Commercial Chemical Substances |
| MAK | Germany Maximum Concentration Values | PRNT | Presumed Not Toxic |
| GHS | Globally Harmonized System | RCRA | Resource Conservation Recovery Act |
| >= | Greater Than or Equal To | STEL | Short-term Exposure Limit |
| IC50 | Inhibition Concentration 50% | SARA | Superfund Amendments and Reauthorization Act. |
| IARC | International Agency for Research on Cancer | TLV | Threshold Limit Value |
| IECSC | Inventory of Existing Chemical Substances in China | TWA | Time Weighted Average |
| ENCS | Japan, Inventory of Existing and New Chemical Substances | TSCA | Toxic Substance Control Act |
| KECI | Korea, Existing Chemical Inventory | UVCB | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <= | Less Than or Equal To | WHMIS | Workplace Hazardous Materials Information System |
| LC50 | Lethal Concentration 50% | | |

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

| | |
|------|--|
| H225 | Highly flammable liquid and vapor. |
| H304 | May be fatal if swallowed and enters airways. |
| H315 | Causes skin irritation. |
| H336 | May cause drowsiness or dizziness. |
| H400 | Very toxic to aquatic life. |
| H411 | Toxic to aquatic life with long lasting effects. |

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Annex**1. Short title of Exposure Scenario: Solvent in other applications**

| | | |
|--------------------------------|---|--|
| Main User Groups | : | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sector of use | : | SU3: Industrial Manufacturing (all) |
| Process category | : | 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 PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring |
| Environmental release category | : | ERC4: Industrial use of processing aids in processes and products, not becoming part of articles |

2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles**Environment factors not influenced by risk management**

Flow rate : 90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air : 0,3 %
Emission or Release Factor: Water : 0,003 %
Emission or Release Factor: Soil : 0,1 %
Local release rate: Air : 0,66 kg/day
Local release rate: Water : 0,0065 kg/day
Local release rate: Soil : 40 kg/day

Technical conditions and measures / Organizational measures

Air : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 70 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Sludge Treatment : Agricultural soil, No

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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationPersonal Protection, None required
Respiratory Protection, None required**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationProtective gloves (Effectiveness: 90 %)
Respiratory Protection, None required**2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance

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Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : One hand face only (240 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)
 Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

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

Protective gloves, APF 10 (Effectiveness: 90 %)
 Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

Human factors not influenced by risk management

: 1500 cm²

Other operational conditions affecting workers exposure

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Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation-dermal:, Yes (Effectiveness: 95 %)

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 95 %)

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

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Two hands (960 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

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

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

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

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

3. Exposure estimation and reference to its source

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Environment

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Compartment | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|------------------------|------------|---------------------------------|-----------------------------|
| ERC4 | Petrorisk | | Freshwater | | 0,00018 mg/L | |
| | | | Freshwater sediment | | 0,0043 mg/kg dry weight (d.w.) | |
| | | | Marine water | | 0,000018 mg/L | |
| | | | Marine sediment | | 0,00043 mg/kg dry weight (d.w.) | |
| | | | Sewage treatment plant | | 0,0018 mg/L | |
| | | | Agricultural soil | | 0,0000012 mg/kg | |

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

Workers/Consumers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|---|-------------------|-----------------------------|
| PROC1 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 0,024547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 0,024078 mg/kg/d | |
| PROC2 | EasyTRA | | Worker – dermal, long-term – systemic | 0,082286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 1,836 mg/kg/d | |
| PROC3 | EasyTRA | | Worker – dermal, long-term – systemic | 0,041143 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,548 mg/kg/d | |
| PROC4 | EasyTRA | | Worker – dermal, long-term – systemic | 0,411429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 4,909 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 1,113 mg/kg/d | |
| PROC7 | EasyTRA | | Worker – dermal, long-term – systemic | 0,128571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 30,683 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,512 mg/kg/d | |
| PROC8a | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d | |
| PROC8b | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |

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| | | | | | |
|--------|---------|--|---|------------------|--|
| | | | Worker – inhalation, long-term – systemic | 3,068 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 1,261 mg/kg/d | |
| PROC10 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 7,364 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,039 mg/kg/d | |
| PROC13 | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d | |

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

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use in polymer processing – professional**

| | |
|------------------|---|
| Main User Groups | : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Sector of use | : SU 22, SU0: Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other |
| Process category | : PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional |

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controlled exposure

PROC6: Calendering operations**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**PROC14:** Production of mixtures or articles by tableting, compression, extrusion, pelletization; Industrial setting;**PROC21:** Low energy manipulation of substances bound in materials and/ or articles

Environmental release category : **ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Further information : Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.

2.1 Contributing scenario controlling environmental exposure for: **ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems**

Environment factors not influenced by risk management

Flow rate : 90.000 m³/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air : 98 %
 Emission or Release Factor: Water : 1 %
 Emission or Release Factor: Soil : 1 %
 Local release rate: Water : 1,6 kg/day
 Local release rate: Air : 160 kg/day
 Local release rate: Soil : 0,0033 kg/day

Technical conditions and measures / Organizational measures

Air : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
 Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant, No
 Flow rate of sewage treatment plant effluent : 2.000 m³/d
 Sludge Treatment : Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: **PROC1: Use in closed process, no likelihood of exposure**

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Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Personal Protection, None required

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC6: Calendering operations**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

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Human factors not influenced by risk management

Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, Yes, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

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Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, Yes, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC14: Production of mixtures or articles by tableting, compression, extrusion, pelletization; Industrial setting;**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, Yes, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC21: Low energy manipulation of substances bound in materials and/ or articles**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Skin
: 1980 cm²**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, Yes, APF 10 (Effectiveness: 90 %)

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Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source**Environment**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Compartment | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|------------------------|------------|-----------------------------------|-----------------------------|
| ERC8a, ERC8d | Petrorisk | | Freshwater | | 0,0000065 mg/L | |
| | | | Freshwater sediment | | 0,000035 mg/kg dry weight (d.w.) | |
| | | | Marine water | | 0,0000001 mg/L | |
| | | | Marine sediment | | 0,0000035 mg/kg dry weight (d.w.) | |
| | | | Sewage treatment plant | | 0,000015 mg/L | |
| | | | Agricultural soil | | 0,00001 mg/kg | |

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

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

Workers/Consumers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|---|-------------------|-----------------------------|
| PROC1 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 0,024547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 0,024078 mg/kg/d | |
| PROC2 | EasyTRA | | Worker – dermal, long-term – systemic | 0,082286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 49,093 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 7,096 mg/kg/d | |
| PROC6 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,091 mg/kg/d | |
| PROC8a | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d | |
| PROC8b | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d | |

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| | | | | | |
|--------|---------|--|---|------------------|--|
| PROC14 | EasyTRA | | Worker – dermal, long-term – systemic | 0,205714 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,712 mg/kg/d | |
| PROC21 | EasyTRA | | Worker – dermal, long-term – systemic | 0,169714 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | | |
| | | | Worker – long-term – systemic Combined routes | 0,169714 mg/kg/d | |

PROC1: Use in closed process, no likelihood of exposure

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

PROC6: Calendering operations

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

PROC14: Production of mixtures or articles by tableting, compression, extrusion, pelletization; Industrial setting;

PROC21: Low energy manipulation of substances bound in materials and/ or articles

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use in coatings – professional**

| | |
|------------------|---|
| Main User Groups | : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Sector of use | : SU 22, SU0: Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other |
| Process category | : 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 mixtures and articles (multistage and/or significant contact) |

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Industrial setting;

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**PROC15:** Use as laboratory reagent**PROC19:** Hand-mixing with intimate contact and only PPE available

Environmental release category : **ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

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

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Environment factors not influenced by risk management

Flow rate : 90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air : 98 %
 Emission or Release Factor: Water : 1 %
 Emission or Release Factor: Soil : 1 %
 Local release rate: Water : 1,1 kg/day
 Local release rate: Air : 11 kg/day
 Local release rate: Soil : 0,000002 kg/day

Technical conditions and measures / Organizational measures

Air : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
 Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant, No
 Flow rate of sewage treatment plant effluent : 2.000 m3/d
 Sludge Treatment : Agricultural soil, Yes, applicable

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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Personal Protection, None required

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)**Product characteristics**

Physical Form (at time of use) : Liquid substance

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Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : One hand face only (240 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)
 Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC5, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;, Treatment of articles by dipping and pouring

Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)
 Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

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Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Skin

: 1500 cm²**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

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Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC19: Hand-mixing with intimate contact and only PPE available**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 15 - 60 min

Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Skin

: 1980 cm²**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

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3. Exposure estimation and reference to its source**Environment**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Compartment | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|------------------------|------------|----------------------------------|-----------------------------|
| ERC8a, ERC8d | Petrorisk | | Freshwater | | 0,000006 mg/L | |
| | | | Freshwater sediment | | 0,000055 mg/kg dry weight (d.w.) | |
| | | | Marine water | | 0,000099 µg/L | |
| | | | Marine sediment | | 0,000024 mg/kg dry weight (d.w.) | |
| | | | Sewage treatment plant | | 0,000099 mg/L | |
| | | | Agricultural soil | | 0,000069 mg/kg | |

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

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

Workers/Consumers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|---|----------------------------|-----------------------------|
| PROC1 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 0,024547 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 0,024078 mg/kg/d | |
| PROC2 | EasyTRA | | Worker – dermal, long-term – systemic | 0,082286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 49,093 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 7,096 mg/kg/d | |
| PROC3 | EasyTRA | | Worker – dermal, long-term – systemic | 0,041143 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 61,366 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 8,808 mg/kg/d | |
| PROC4 | EasyTRA | | Worker – dermal, long-term – systemic | 0,411429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 2,165 mg/kg/d | |
| PROC5 | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 2,598 mg/kg | |
| PROC13 | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |

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| | | | | | |
|--------|---------|--|---|------------------|--|
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg | |
| PROC8a | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d | |
| PROC8b | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d | |
| PROC10 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,091 mg/kg/d | |
| PROC11 | EasyTRA | | Worker – dermal, long-term – systemic | 1,286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,039 mg/kg/d | |
| PROC15 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 2,455 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 0,371236 mg/kg/d | |
| PROC19 | EasyTRA | | Worker – dermal, long-term – systemic | 0,565714 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 1,636 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 0,799491 mg/kg/d | |

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 mixtures and articles (multistage and/or significant contact) Industrial setting;

PROC13: Treatment of articles by dipping and pouring

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

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PROC11: Non industrial spraying

PROC15: Use as laboratory reagent

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Lubricants - Professional

| | | |
|--------------------------------|---|---|
| Main User Groups | : | SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Sector of use | : | SU 22, SU0: Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other |
| Process category | : | 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 PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems |
| Environmental release category | : | ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems |
| Further information | : | Covers the use of formulated lubricants in closed and open |

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systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Environment factors not influenced by risk management

Flow rate : 90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air : 40 %
 Emission or Release Factor: Water : 5 %
 Emission or Release Factor: Soil : 5 %
 Local release rate: Water : 5,6 kg/day
 Local release rate: Air : 44 kg/day
 Local release rate: Soil : 0,011 kg/day

Technical conditions and measures / Organizational measures

Air : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
 Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of \geq (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant, No
 Flow rate of sewage treatment plant effluent : 2.000 m3/d
 Sludge Treatment : Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h
 Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : One hand face only (240 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

None required

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC9, PROC13,

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PROC20: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Treatment of articles by dipping and pouring, Heat and pressure transfer fluids in dispersive, professional use but closed systems

Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationProtective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationProtective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10, PROC18: Roller application or brushing, Greasing at high energy conditions

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Product characteristics

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Skin

: 1500 cm²**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions and in partly open process**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

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Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 95 %)

3. Exposure estimation and reference to its source**Environment**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Compartment | Value type | Level of Exposure | Risk characterization ratio |
|----------------------------|----------------------------|---------------------|------------------------|------------|----------------------------------|-----------------------------|
| ERC8a, ERC8d, ERC9a, ERC9b | Petrorisk | | Freshwater | | 0,000049 mg/L | |
| | | | Freshwater sediment | | 0,00012 mg/kg dry weight (d.w.) | |
| | | | Marine water | | 0,00049 µg/L | |
| | | | Marine sediment | | 0,000012 mg/kg dry weight (d.w.) | |
| | | | Sewage treatment plant | | 0,000049 mg/L | |
| | | | Agricultural soil | | 0,000035 mg/kg | |

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

Workers/Consumers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|---|----------------------------|-----------------------------|
| PROC1 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 0,024547 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 0,024078 mg/kg/d | |
| PROC2 | EasyTRA | | Worker – dermal, long-term – systemic | 0,082286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 49,093 mg/m ³ | |
| | | | Worker – long-term – systemic Combined routes | 7,096 mg/kg/d | |
| PROC3 | EasyTRA | | Worker – dermal, long-term – systemic | 0,041143 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 61,366 mg/m ³ | |
| | | | Worker – long-term – | 8,808 mg/kg/d | |

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| | | | | |
|--------|---------|--|---|------------------|
| | | | systemic Combined routes | |
| PROC4 | EasyTRA | | Worker – dermal, long-term – systemic | 0,411429 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 2,165 mg/kg/d |
| PROC9 | EasyTRA | | Worker – dermal, long-term – systemic | 0,411429 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 3,918 mg/kg/d |
| PROC13 | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d |
| PROC20 | EasyTRA | | Worker – dermal, long-term – systemic | 0,102857 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 4,909 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 0,804186 mg/kg/d |
| PROC8a | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d |
| PROC8b | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d |
| PROC10 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 3,091 mg/kg/d |
| PROC18 | EasyTRA | | Worker – dermal, long-term – systemic | 0,493714 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 29,456 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 4,702 mg/kg/d |
| PROC11 | EasyTRA | | Worker – dermal, long-term – systemic | 1,286 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 3,039 mg/kg/d |
| PROC17 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m3 |
| | | | Worker – long-term – systemic Combined routes | 3,091 mg/kg/d |

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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

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

PROC13: Treatment of articles by dipping and pouring

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

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

PROC18: Greasing at high energy conditions

PROC11: Non industrial spraying

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use as a cleaning agent – professional**

| | |
|------------------|---|
| Main User Groups | : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Sector of use | : SU 22, SU0: Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other |
| Process category | : 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 |

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| | |
|--------------------------------|---|
| | 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 |
| Environmental release category | : ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems |
| Further information | : 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). |

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems**Environment factors not influenced by risk management**

Flow rate : 90.000 m3/d

Other given operational conditions affecting environmental exposure

| | |
|-----------------------------------|--|
| Emission or Release Factor: Air | : 2 % |
| Emission or Release Factor: Water | : 0,0001 % |
| Emission or Release Factor: Soil | : 0 % |
| Local release rate: Water | : 1,1 kg/day |
| Local release rate: Air | : 22 kg/day |
| Local release rate: Soil | : |
| Remarks | : There is no direct exposure to soil. |

Technical conditions and measures / Organizational measures

| | |
|-------|--|
| Air | : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %) |
| Water | : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of \geq (%): (Effectiveness: > 96,4 %) |

Conditions and measures related to municipal sewage treatment plant

| | |
|--|--|
| Type of Sewage Treatment Plant | : Municipal sewage treatment plant, No |
| Flow rate of sewage treatment plant effluent | : 2.000 m3/d |
| Sludge Treatment | : Agricultural soil, Yes, applicable |

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure**Product characteristics**

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Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationNone required
Respiratory Protection, None required**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationProtective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required**2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : One hand face only (240 cm²)

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Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Treatment of articles by dipping and pouring**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

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Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Skin

: 1500 cm²**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 95 %)

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3. Exposure estimation and reference to its source**Environment**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Compartment | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|------------------------|------------|----------------------------------|-----------------------------|
| ERC8a, ERC8d | Petrorisk | | Freshwater | | 0,000005 mg/L | |
| | | | Freshwater sediment | | 0,000032 mg/kg dry weight (d.w.) | |
| | | | Marine water | | 0,000014 µg/L | |
| | | | Marine sediment | | 0,000056 µg/kg dry weight (d.w.) | |
| | | | Sewage treatment plant | | 0,000099 ng/L | |
| | | | Agricultural soil | | 0,00046 mg/kg | |

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

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

Workers/Consumers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|---|-------------------|-----------------------------|
| PROC1 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 0,024547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 0,024078 mg/kg/d | |
| PROC2 | EasyTRA | | Worker – dermal, long-term – systemic | 0,082286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 49,093 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 7,096 mg/kg/d | |
| PROC3 | EasyTRA | | Worker – dermal, long-term – systemic | 0,041143 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 61,366 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 8,808 mg/kg/d | |
| PROC4 | EasyTRA | | Worker – dermal, long-term – systemic | 0,411429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,165 mg/kg/d | |
| PROC13 | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d | |
| PROC8a | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, | 24,547 mg/m3 | |

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| | | | | | |
|--------|---------|--|---|------------------|--|
| | | | long-term – systemic | | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d | |
| PROC8b | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d | |
| PROC10 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,091 mg/kg/d | |
| PROC11 | EasyTRA | | Worker – dermal, long-term – systemic | 1,286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,039 mg/kg/d | |

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

PROC13: Treatment of articles by dipping and pouring

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Solvent in other applications- Professional**

Main User Groups : **SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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| | |
|--------------------------------|---|
| Sector of use | : SU 22, SU0: Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other |
| Process category | : 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 PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring |
| Environmental release category | : ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems |

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Environment factors not influenced by risk management

Flow rate : 90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air : 40 %
Emission or Release Factor: Water : 5 %
Emission or Release Factor: Soil : 0 %
Local release rate: Water : 8,4 kg/day
Local release rate: Air : 66 kg/day
Local release rate: Soil :
Remarks : There is no direct exposure to soil.

Technical conditions and measures / Organizational measures

Air : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of \geq (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Sludge Treatment : Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed

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process, no likelihood of exposure**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationNone required
Respiratory Protection, None required**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationProtective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required**2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week

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Human factors not influenced by risk managementExposed skin area : One hand face only (240 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : > 4 h

Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

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Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk managementExposed skin area : Two hands (960 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management

Exposed skin area : Skin
: 1500 cm²

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

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

Protective gloves, APF 10 (Effectiveness: 90 %)

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Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring**Product characteristics**

Physical Form (at time of use) : Liquid substance

Frequency and duration of useExposure duration : > 4 h
Frequency of use : 5 days/week**Human factors not influenced by risk management**Exposed skin area : Palms of both hands (480 cm²)**Other operational conditions affecting workers exposure**

Outdoor / Indoor : Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluationProtective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)**3. Exposure estimation and reference to its source****Environment**

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Compartment | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|------------------------|------------|----------------------------------|-----------------------------|
| ERC8a, ERC8d | Petrorisk | | Freshwater | | 0,000074 mg/L | |
| | | | Freshwater sediment | | 0,00018 mg/kg dry weight (d.w.) | |
| | | | Marine water | | 0,00074 µg/L | |
| | | | Marine sediment | | 0,000018 mg/kg dry weight (d.w.) | |
| | | | Sewage treatment plant | | 0,000074 mg/L | |
| | | | Agricultural soil | | 0,000052 mg/kg | |

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

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

Workers/Consumers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterization ratio |
|-----------------------|----------------------------|---------------------|---|----------------------------|-----------------------------|
| PROC1 | EasyTRA | | Worker – dermal, long-term – systemic | 0,020571 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 0,024547 mg/m ³ | |
| | | | Worker – long-term – | 0,024078 mg/kg/d | |

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| | | | | | |
|--------|---------|--|---|------------------|--|
| | | | systemic Combined routes | | |
| PROC2 | EasyTRA | | Worker – dermal, long-term – systemic | 0,082286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 49,093 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 7,096 mg/kg/d | |
| PROC3 | EasyTRA | | Worker – dermal, long-term – systemic | 0,041143 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 61,366 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 8,808 mg/kg/d | |
| PROC4 | EasyTRA | | Worker – dermal, long-term – systemic | 0,411429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,165 mg/kg/d | |
| PROC8a | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d | |
| PROC8b | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 2,576 mg/kg/d | |
| PROC10 | EasyTRA | | Worker – dermal, long-term – systemic | 0,987429 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 14,728 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,091 mg/kg/d | |
| PROC11 | EasyTRA | | Worker – dermal, long-term – systemic | 1,286 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 12,273 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 3,039 mg/kg/d | |
| PROC13 | EasyTRA | | Worker – dermal, long-term – systemic | 0,822857 mg/kg/d | |
| | | | Worker – inhalation, long-term – systemic | 24,547 mg/m3 | |
| | | | Worker – long-term – systemic Combined routes | 4,33 mg/kg/d | |

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

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containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.