

Safety Data Sheet

FASSAFILL EPOXY COMP.A

Safety Data Sheet dated 24/06/2024 version 4



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

1.1. Product identifier

Mixture identification:

Trade name: FASSAFILL EPOXY COMP.A

Trade code: 1281

UFI: KGPY-756C-QPDT-FSYV

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

Recommended use: Two-component epoxy mortar; For professional use only

Uses advised against: Not intended for consumer use

1.3. Details of the supplier of the safety data sheet

Company: FASSA Srl

Via Lazzaris, 3 - 31027 Spresiano (TV) - Italy

Tel. +39 0422 7222

Fax +39 0422 887509

Imported in the UK:

FASSA UK LTD

Ashchurch Business Centre,

Alexandra Way, Ashchurch, Tewkesbury GL20 8TD- UK

Tel. +44 (0) 1684.212272

Responsible: laboratorio.spresiano@fassabortolo.it

1.4. Emergency telephone number

NHS 111

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Skin Irrit. 2	Causes skin irritation.
Eye Irrit. 2	Causes serious eye irritation.
Skin Sens. 1	May cause an allergic skin reaction.
Repr. 1B	May damage fertility.
Aquatic Chronic 3	Harmful to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Hazard pictograms and Signal Word



Danger

Hazard statements

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H360F	May damage fertility.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P201	Obtain special instructions before use.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.

P273	Avoid release to the environment.
P280	Wear protective gloves/clothing and eye/face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P501	Dispose of contents/container in accordance with national regulation.

Special Provisions:

EUH205 Contains epoxy constituents. May produce an allergic reaction.

Contains:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

The product has been classified according to Regulation (EC) No 1272/2008 (CLP) as amended by UK CLP Regulation, UK SI 2019/720 and UK SI 2020/1567.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FASSAFILL EPOXY COMP.A

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number:
≥15 - <20 %	bis-[4-(2,3-epoxipropoxi)phenyl]propane	CAS:1675-54-3 EC:216-823-5 Index:603-073-00-2	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411 Specific Concentration Limits: 5% ≤ C < 100%: Skin Irrit. 2 H315 5% ≤ C < 100%: Eye Irrit. 2 H319	01-2119456619-26-xxxx
≥3 - <5 %	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	EC:701-263-0	Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411	01-2119454392-40-xxxx
≥1 - <2.5 %	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	CAS:68609-97-2 EC:271-846-8 Index:603-103-00-4	Skin Irrit. 2, H315; Skin Sens. 1, H317; Repr. 1B, H360F	01-2119485289-22-xxxx
≥0.1 - <0.3 %	Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	CAS:1065336-91-5 EC:915-687-0	Skin Sens. 1A, H317; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Repr. 2, H361f, M-Chronic:1, M-Acute:1	01-2119491304-40-xxxx
≥0.1 - <0.3 %	titanium dioxide	CAS:13463-67-7 EC:236-675-5 Index:022-006-00-2	Carc. 2, H351	01-2119489379-17-xxxx
≥0.0015 - <0.005 %	1,2,4-trimethylbenzene	CAS:95-63-6 EC:202-436-9 Index:601-043-00-3	Flam. Liq. 3, H226; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335; Aquatic Chronic 2, H411	

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Remove contaminated clothing immediately and dispose off safely.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

The symptoms and effects are as expected from the hazards as shown in section 2.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

CO2, powder extinguisher, foam, water spray.

Extinguishing media which must not be used for safety reasons:

Water jet.

5.2. Special hazards arising from the substance or mixture

Burning produces heavy smoke.

Do not inhale explosion and/or combustion gases (carbon monoxide, carbon dioxide, nitrogen oxides).

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

For emergency responders:

Wear personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

Material suitable for collection: inert absorbent material (e.g. sand, vermiculite)

After the product has been recovered, rinse the area and materials involved with water.

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Advice on general occupational hygiene:

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

See chapter 10.5

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

See chapter 1.2

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

titanium dioxide

CAS: 13463-67-7	OEL Type	ACGIH	Long Term: 0.2 mg/m ³ Notes: Nanoscale particles - A3 - rspr bt, pnmc
			Long Term: 2.5 mg/m ³ Notes: Finescale particles - A3 - rspr bt, pnmc
	OEL Type	MAK GERMANY	Long Term: 0.3 mg/m ³ ; Short Term: 2.4 mg/m ³ Notes: Respirable fraction, except ultrafine particles , Multiplied by the material density
	OEL Type	VLEP BELGIUM	Long Term: 10 mg/m ³
	OEL Type	VLEP FRANCE	Long Term: 10 mg/m ³
	OEL Type	VLEP ROMANIA	Long Term: 10 mg/m ³ ; Short Term: 15 mg/m ³
	OEL Type	VLA SPAIN	Long Term: 10 mg/m ³ Notes: Inhalable fraction
	OEL Type	SUVA SWITZERLAND	Long Term: 3 mg/m ³ Notes: Respirable aerosol
	OEL Type	WEL U.K.	Long Term: 10 mg/m ³ Notes: Inhalable aerosol
			Long Term: 4 mg/m ³ Notes: Respirable aerosol
	OEL Type	GVI CROATIA	Long Term: 10 mg/m ³ Notes: Inhalable fraction
			Long Term: 4 mg/m ³ Notes: Respirable fraction
	OEL Type	AGW GERMANY	Long Term: 1.25 mg/m ³ Notes: Respirable dust particles
	OEL Type	NDS POLAND	Long Term: 10 mg/m ³ Notes: Inhalable fraction

1,2,4-trimethylbenzene

CAS: 95-63-6 OEL Type EU Long Term: 100 mg/m³ - 20 ppm

Predicted No Effect Concentration (PNEC) values

bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS: 1675-54-3 Exposure Route: Fresh Water; PNEC Limit: 0.006 mg/l
Exposure Route: Marine water; PNEC Limit: 0.001 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 0.341 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 0.034 mg/kg
Exposure Route: Soil (agricultural); PNEC Limit: 0.065 mg/kg
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Exposure Route: Fresh Water; PNEC Limit: 0.003 mg/l
Exposure Route: Marine water; PNEC Limit: 0.3 µg/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
Exposure Route: Marine water sediments; PNEC Limit: 0.029 mg/kg
Exposure Route: Freshwater sediments; PNEC Limit: 0.294 mg/kg
Exposure Route: Soil; PNEC Limit: 0.237 mg/kg

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

CAS: 68609-97-2 Exposure Route: Fresh Water; PNEC Limit: 0.106 mg/l
Exposure Route: Marine water; PNEC Limit: 0.011 mg/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
Exposure Route: Marine water sediments; PNEC Limit: 30.72 mg/kg
Exposure Route: Freshwater sediments; PNEC Limit: 307.16 mg/kg
Exposure Route: Soil; PNEC Limit: 1.234 mg/kg

Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

CAS: 1065336-91-5 Exposure Route: Marine water; PNEC Limit: 0.22 µg/l

Exposure Route: Fresh Water; PNEC Limit: 2.2 µg/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 mg/l
Exposure Route: Marine water sediments; PNEC Limit: 0.11 mg/kg
Exposure Route: Freshwater sediments; PNEC Limit: 1.05 mg/kg
Exposure Route: Soil (agricultural); PNEC Limit: 0.21 mg/kg

Derived No Effect Level (DNEL) values

bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS: 1675-54-3 Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 0.75 mg/kg; Consumer: 0.089 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4.93 mg/m³; Consumer: 0.87 mg/m³

Exposure Route: Human Oral; Exposure Frequency: Short Term, systemic effects
Consumer: 0.5 mg/kg

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 104.15 mg/kg; Consumer: 62.5 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Short Term, local effects
Worker Professional: 0.008 mg/cm²

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 29.39 mg/m³; Consumer: 8.7 mg/m³

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 6.25 mg/kg

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

CAS: 68609-97-2 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.6 mg/m³; Consumer: 0.87 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1 mg/kg; Consumer: 0.5 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 0.5 mg/kg

Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

CAS: 1065336-91-5 Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.8 mg/kg; Consumer: 0.9 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.27 mg/m³; Consumer: 0.31 mg/m³

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 0.18 mg/kg

8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction.

Eye protection:

Eye glasses with side protection (EN 166).

Protection for skin:

Use suitable clothing that provides complete protection to the skin according to activity and exposure (EN 14605/EN 13982), e.g. overall, apron, safety shoes, suitable clothing.

Protection for hands:

There is no material or combination of materials for gloves that can guarantee unlimited resistance to any individual chemical or combination of chemicals.

For prolonged or repeated handling, use chemical resistant gloves.

Suitable materials for safety gloves (EN 374/EN 16523); NBR (Nitril rubber): thickness ≥ 0.4 mm; permeation time ≥ 480 min. FKM (Fluorinated rubber): thickness ≥ 0.4 mm; permeation time ≥ 480 min

The choice of suitable gloves does not only depend on the material, but also on other quality characteristics that vary from one manufacturer to another and on the manner and times according to which the mixture is used.

Respiratory protection:

If workers are exposed to concentrations above the exposure limit they must use appropriate, certified respirators.

Combination filtering device (EN 14387).

Environmental exposure controls:

See point 6.2

Hygienic and Technical measures

See section 7.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State: Solid

Appearance: thick liquid

Color: various

Odour: Characteristic

Odour threshold: N.D.

Melting point/freezing point: N.D.

Boiling point or initial boiling point and boiling range: N.D.

Flammability: Non-flammable

Lower and upper explosion limit: N.D.

Flash point: $> 93^{\circ}\text{C}$ (Internal assessment)

Auto-ignition temperature: N.D.

Decomposition temperature: N.D.

pH: N.A. (Not applicable due to nature of the product)

Kinematic viscosity: > 20.5 mm²/s (40 °C)

Density and/or relative density: 1.66 ± 0.02 kg/l (Internal method)

Relative vapour density: N.D.

Vapour pressure: N.D.

Solubility in water: Insoluble

Solubility in oil: No data available

Partition coefficient n-octanol/water (log value): N.A.

Particle characteristics:

This product contains nanomaterials in spheroidal and amorphous form that are surface treated/coated.

9.2. Other information

Conductivity: N.D.

Explosive properties: N.D.

Oxidizing properties: N.D.

Evaporation rate: N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

The product can generate liquid phases over time.

10.3. Possibility of hazardous reactions

It may catch fire on contact with powerful oxidising agents.

Because of heat or fire the preparation can release carbon oxides and vapours which may be harmful to health.

10.4. Conditions to avoid

Keep away from heat sources.

10.5. Incompatible materials

Powerful oxidising agents, powerful reducing agents, aliphatic and aromatic amines.

See chapter 10.3

10.6. Hazardous decomposition products

No hazardous decomposition products when stored and handled correctly.

See chapter 5.2

SECTION 11: Toxicological information

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

Information on hazard classes as defined in the retained Regulation (EC) No 1272/2008 (CLP) as amended by UK CLP Regulation, UK SI 2019/720 and UK SI 2020/1567.

Liquid epoxy resin contained in this material causes only minor skin irritation. However, all epoxy resins are capable of causing sensitizing of the skin. Susceptibility to skin irritation and sensitization varies from person to person.

In a sensitized individual the allergic dermatitis may not appear until after several days or weeks of frequent and prolonged contact. Therefore, even though the skin irritation potential is slight, skin contact should be avoided.

Once sensitization has occurred, exposure of the skin to very small quantities of the material may cause erythema and edema.

Toxicological Information of the Preparation

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	The product is classified: Skin Irrit. 2(H315)
c) serious eye damage/irritation	The product is classified: Eye Irrit. 2(H319)
d) respiratory or skin sensitisation	The product is classified: Skin Sens. 1(H317)
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	The product is classified: Repr. 1B(H360)
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS: 1675-54-3 a) acute toxicity LD50 Oral Rat > 2000 mg/kg
LD50 Skin Rat > 2000 mg/kg

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

a) acute toxicity LD50 Skin Rat > 2000 mg/kg
LD50 Oral Rat > 5000 mg/kg

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

CAS: 68609-97-2 a) acute toxicity LC0 Inhalation Vapour Rat > 0.15 mg/l 7h
LD50 Oral Rat > 2000 mg/kg
LD50 Skin Rabbit > 4000 mg/kg

Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

CAS: 1065336-91-5 a) acute toxicity LD50 Oral Rat > 3230 mg/kg

titanium dioxide

CAS: 13463-67-7 a) acute toxicity LD50 Oral Rat > 5000 mg/kg
LC50 Inhalation Dust Rat > 6.82 mg/l 4h

11.2 Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration $\geq 0.1\%$

SECTION 12: Ecological information

Adopt good working practices, so that the product is not released into the environment.

12.1. Toxicity

Eco-Toxicological Information:

Harmful to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 3(H412)

List of Eco-Toxicological properties of the components

bis-[4-(2,3-epoxipropoxy)phenyl]propane

- CAS: 1675-54-3
- a) Aquatic acute toxicity: EC50 Daphnia 1.8 mg/l 48h
 - a) Aquatic acute toxicity: LC50 Fish 2 mg/l 96h
 - a) Aquatic acute toxicity: EC50 Algae 11 mg/l 72h
 - b) Aquatic chronic toxicity: NOEC Daphnia 0.3 mg/l 21d

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

- a) Aquatic acute toxicity: LC50 Fish 2.54 mg/l 96h
- a) Aquatic acute toxicity: EC50 Daphnia 2.55 mg/l 48h
- a) Aquatic acute toxicity: EC50 Algae 1.8 mg/l 72h
- b) Aquatic chronic toxicity: NOEC Daphnia 0.3 mg/l 21d

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

- CAS: 68609-97-2
- a) Aquatic acute toxicity: LL50 Fish > 100 mg/l 96h
 - a) Aquatic acute toxicity: EL50 Daphnia 7.2 mg/l 48h
 - a) Aquatic acute toxicity: IC50 Algae 843.75 mg/l 72h

Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

- CAS: 1065336-91-5
- a) Aquatic acute toxicity: LC50 Fish 0.9 mg/l 96h
 - a) Aquatic acute toxicity: NOEC Algae 0.22 mg/l 72h
 - b) Aquatic chronic toxicity: NOEC Daphnia 6.3 mg/l 21d

titanium dioxide

- CAS: 13463-67-7
- a) Aquatic acute toxicity: LC50 Fish > 1000 mg/l 96h
 - a) Aquatic acute toxicity: EC50 Daphnia > 1000 mg/l 48h
 - a) Aquatic acute toxicity: EC50 Algae 61 mg/l 72h

12.2. Persistence and degradability

bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS: 1675-54-3 Non-readily biodegradable

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Non-readily biodegradable

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

CAS: 68609-97-2 Readily biodegradable

12.3. Bioaccumulative potential

N.A.

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration $\geq 0.1\%$

12.6 Endocrine disrupting properties

No endocrine disruptor substances present in concentration $\geq 0.1\%$

12.7 Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the

local and national regulations currently in force.

Do not allow it to enter drains or watercourses.

Dispose of containers contaminated by the product in accordance with local or national legal provisions.

Once the product has expired, it must be disposed of in accordance with current legislation.

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number or ID number

N/A

14.2. UN proper shipping name

ADR-Shipping Name: N/A

IATA-Shipping Name: N/A

IMDG-Shipping Name: N/A

14.3. Transport hazard class(es)

ADR-Class: N/A

IATA-Class: N/A

IMDG-Class: N/A

14.4. Packing group

ADR-Packing Group: N/A

IATA-Packing group: N/A

IMDG-Packing group: N/A

14.5. Environmental hazards

Marine pollutant: No

Environmental Pollutant: No

IMDG-EMS: N/A

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR exempt:

ADR-Label: N/A

ADR - Hazard identification number: N/A

ADR-Special Provisions: N/A

ADR-Transport category (Tunnel restriction code):

Air (IATA):

IATA-Passenger Aircraft: N/A

IATA-Cargo Aircraft: N/A

IATA-Label: N/A

IATA-Subsidiary hazards: N/A

IATA-Erg: N/A

IATA-Special Provisions: N/A

Sea (IMDG):

IMDG-Stowage and handling: N/A

IMDG-Segregation: N/A

IMDG-Subsidiary hazards: N/A

IMDG-Special Provisions: N/A

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Directive 2010/75/EU

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 2020/878

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)
Regulation (EU) n. 2023/1434 (ATP 19 CLP)
Regulation (EU) n. 2023/1435 (ATP 20 CLP)
Regulation (EU) n. 2024/197 (ATP 21 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: None.
Restrictions related to the substances contained: 40, 75

Provisions related to directive EU 2012/18 (Seveso III):

None

Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

Class 2: hazardous for water.

SVHC Substances:

On the basis of available data, the product does not contain any SVHC in percentage $\geq 0.1\%$.

Relevant EU provisions transposed through retained EU legislation:
UK REACH List of restrictions (Annex XVII);
UK REACH Candidate list of substances of very high concern (SVHC) for authorisation;
UK REACK List of substances subject to authorisation (Annex XIV);
Export and import of hazardous chemicals - Prior informed consent (PIC regulation).

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Code	Description
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer if inhaled.
H360F	May damage fertility.
H361f	Suspected of damaging fertility.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), Category 4
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1

3.4.2/1A	Skin Sens. 1A	Skin Sensitisation, Category 1A
3.6/2	Carc. 2	Carcinogenicity, Category 2
3.7/1B	Repr. 1B	Reproductive toxicity, Category 1B
3.7/2	Repr. 2	Reproductive toxicity, Category 2
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
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Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1, H317	Calculation method
Repr. 1B, H360F	Calculation method
Aquatic Chronic 3, H412	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold
Safety data sheets of raw materials suppliers.

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE: Acute Toxicity Estimate
ATEmix: Acute toxicity Estimate (Mixtures)
BEI: Biological Exposure Index
CAS: Chemical Abstracts Service (division of the American Chemical Society).
CAV: Poison Center
CE: European Community
CLP: Classification, Labeling, Packaging.
CMR: Carcinogenic, Mutagenic and Reprotoxic
COV: Volatile Organic Compound
CSA: Chemical Safety Assessment
CSR: Chemical Safety Report
DNEL: Derived No Effect Level.
EC50: Half Maximal Effective Concentration
ECHA: European Chemicals Agency
EINECS: European Inventory of Existing Commercial Chemical Substances.
ES: Exposure Scenario
GefStoffVO: Ordinance on Hazardous Substances, Germany.
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association.
IC50: half maximal inhibitory concentration
IMDG: International Maritime Code for Dangerous Goods.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
LDLo: Leathal Dose Low
N.A.: Not Applicable
N/A: Not Applicable
N/D: Not defined/ Not available
N.D.: Not available

NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TLV-TWA: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 16: Other information

Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

Substance identification

Chemical Name: Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

CAS number: 1065336-91-5

EC number: 915-687-0

Registration Number: 01-2119491304-40-XXXX

Date - Version: 04/04/2022

INDUSTRIAL USE PRODUCT CATEGORIES (PC1, PC9a, PC32) SECTORS OF USE (SU15, SU17)

1. TITLE SECTION

EXPOSURE SCENARIO NAME

Industrial use of HALS in articles

USE DESCRIPTORS

Product Categories:

Adhesives, Sealants (PC1) Coatings and Paints, Thinners, paint removers (PC9a) Polymer Preparations and Compounds (PC32)

Sectors of use:

Manufacture of fabricated metal products, except machinery and equipment (SU 15). General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment (SU 17).

Environment

1. Industrial use of HALS in articles - ERC5

Worker

2. Mixing or blending in batch processes for formulation of preparations and articles - PROC5

3: Calendering operations - PROC6

4: Industrial spraying - PROC7

5: Transfer of chemicals from/to vessels/large containers at non dedicated facilities. - PROC8a

6: Transfer of chemicals from/to vessels/large containers at dedicated facilities - PROC8b

7: Roller or brush application - PROC10

8: Treatment of articles by dipping and pouring - PROC13

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

10: High (mechanical) energy work-up of substances bound in materials and/or articles - PROC24

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1 ENVIRONMENTAL EXPOSURE CONTROL - Industrial use of HALS in articles - (ERC5)

Amount used, frequency and duration of use (or from service life)

Daily amount per site: ≤ 0,1 ton/day

Daily amount per site: ≤ 22,5 ton/year

Conditions and measures for the biological waste water treatment plant

Municipal sewage treatment plant is assumed.

Assumed domestic sewage treatment plant flow: ≥ 2E3 m³/day

Conditions and measures related to external treatment of waste (including article waste)

Dispose of waste product or used containers according to local regulations.

Other conditions affecting environmental exposure

Receiving surface water flow: ≥ 1.8E4 m³/day

2.2 WORKERS EXPOSURE CONTROL - Mixing or blending in batch processes for formulation of preparations and articles - (PROC5)

Product features (article)

Liquid.

Covers concentrations up to 5%

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.3 WORKERS EXPOSURE CONTROL - Calendering operations - (PROC6)

Product features (article)

Liquid.

Covers concentrations up to 5%

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.4 WORKERS EXPOSURE CONTROL - Industrial spraying - (PROC7)

Product features (article)

Liquid.

Covers concentrations up to 1%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 1 h/day.

Technical and organizational conditions and measures

Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.5 WORKERS EXPOSURE CONTROL - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities. - (PROC8b)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.6 WORKERS EXPOSURE CONTROL - Transfer of chemicals from/to vessels/ large containers at dedicated facilities - (PROC8b)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.7 WORKERS EXPOSURE CONTROL - Roller or brush application - (PROC10)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.8 WORKERS EXPOSURE CONTROL - Treatment of articles by dipping and pouring - (PROC13)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.9 WORKERS EXPOSURE CONTROL - Low energy manipulation of substances bound in materials and/or articles - (PROC21)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.10 WORKERS EXPOSURE CONTROL - High (mechanical) energy work-up of substances bound in materials and/or articles - (PROC24)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1 ENVIRONMENTAL RELEASE AND EXPOSURE - Industrial use of HALS in articles - (ERC5)

Release route	Release rate	Release estimation method
Water	0.01 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0.01 kg/day	Estimated release factor

Protection goal	Exposure estimate	RCR
Fresh water	3.72E-4 mg/L (EUSES 2.1.2)	0.169
Sediment (freshwater)	0.177 mg/kg dw (EUSES 2.1.2)	0.169
Sea water	3.7E-5 mg/L (EUSES 2.1.2)	0.168
Sediment (marine water)	0.018 mg/kg dw (EUSES 2.1.2)	0.16
Wastewater treatment plant	3.2E-3 mg/L (EUSES 2.1.2)	< 0.01
Farmland	0.013 mg/kg dw (EUSES 2.1.2)	0.063
Man via environment - Inhalation (systemic effects)	2.77E-8 mg/m ³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.24E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes	-	< 0.01

3.2 WORKERS EXPOSURE - Mixing or blending in batch processes for formulation of preparations and articles - (PROC5)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.037 mg/m ³ (TRA Workers 3.0)	0.029
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.305
Combined, systemic, long term		0.334

3.3 WORKERS EXPOSURE - Calendering operations - (PROC6)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.037 mg/m ³ (TRA Workers 3.0)	0.029
Dermal, systemic, long term	1.097 mg/kg bw/day (TRA Workers 3.0)	0.61
Combined, systemic, long term		0.638

3.4 WORKERS EXPOSURE - Industrial spraying - (PROC7)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.55 mg/m ³ (TRA Workers 3.0)	0.433
Dermal, systemic, long term	0.857 mg/kg bw/day (TRA Workers 3.0)	0.476
Combined, systemic, long term		0.909

3.5 WORKERS EXPOSURE - Transfer of chemicals from/to vessels/large containers at non dedicated facilities. - (PROC8a)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.037 mg/m ³ (TRA Workers 3.0)	0.029
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.305
Combined, systemic, long term		0.334

3.6 WORKERS EXPOSURE - Transfer of chemicals from/to vessels/large containers at dedicated facilities - (PROC8b)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.018 mg/m ³ (TRA Workers 3.0)	0.014
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.305
Combined, systemic, long term		0.319

3.7 WORKERS EXPOSURE - Roller or brush application - (PROC10)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.037 mg/m ³ (TRA Workers 3.0)	0.029
Dermal, systemic, long term	1.097 mg/kg bw/day (TRA Workers 3.0)	0.61
Combined, systemic, long term		0.638

3.8 WORKERS EXPOSURE - Treatment of articles by dipping and pouring - (PROC13)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.5 mg/m ³ (TRA Workers 3.0)	0.394
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.595
Combined, systemic, long term		0.989

3.9 WORKERS EXPOSURE - Low energy manipulation of substances bound in materials and/or articles - (PROC21)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.2 mg/m ³ (ECETOC TRA Workers)	0.157
Dermal, systemic, long term	0.1 mg/kg bw/day (ECETOC TRA Workers)	0.056
Combined, systemic, long term		0.213

3.10 WORKERS EXPOSURE - High (mechanical) energy work-up of substances bound in materials and/or articles - (PROC24)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.2 mg/m ³ (ECETOC TRA Workers)	0.157
Dermal, systemic, long term	0.1 mg/kg bw/day (ECETOC TRA Workers)	0.056
Combined, systemic, long term		0.213

USO DIFFUSO DA PARTE DI OPERATORI PROFESSIONALI PRODUCT CATEGORIES (PC1, PC9a, PC32) SECTORS USE (SU15, SU17, SU19)

1. TITLE SECTION

EXPOSURE SCENARIO NAME

Wide dispersive outdoor use of HALS resulting in inclusion into a matrix

USE DESCRIPTORS

Product Categories:

Adhesives, Sealants (PC1) Coatings and Paints, Thinners, paint removers (PC 9a), Polymer Preparations and Compounds (PC32)

Sectors of use:

Manufacture of fabricated metal products, except machinery and equipment (SU 15). General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment (SU 17). Building and construction work (SU 19)

Environment

1. Wide dispersive outdoor use of HALS resulting in inclusion into a matrix - ERC8f
2. Wide dispersive indoor use of HALS resulting in inclusion into a matrix - ERC8c

Worker

3. Mixing or blending in batch processes for formulation of preparations and articles - PROC5
4. Transfer of chemicals from/to vessels/large containers at non dedicated facilities - PROC8a
5. Transfer of chemicals from/to vessels/large containers at dedicated facilities - PROC8b
6. Roller or brush application - PROC10
7. Non-industrial spraying - PROC13
8. Low energy manipulation of substances bound in materials and/or articles - PROC21
9. High (mechanical) energy work-up of substances bound in materials and/or articles - PROC24

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1 ENVIRONMENTAL EXPOSURE CONTROL - Wide dispersive outdoor use of HALS resulting in inclusion into a matrix - (ERC8f)

Conditions and measures for the biological waste water treatment plant

Municipal sewage treatment plant is assumed.

Conditions and measures related to external treatment of waste (including article waste)

Dispose of waste product or used containers according to local regulations.

2.2 ENVIRONMENTAL EXPOSURE CONTROL - Wide dispersive indoor use of HALS resulting in inclusion into a matrix - (ERC8c)

Conditions and measures for the biological waste water treatment plant

Municipal sewage treatment plant is assumed.

Conditions and measures related to external treatment of waste (including article waste)

Dispose of waste product or used containers according to local regulations.

2.3 WORKERS EXPOSURE CONTROL - Mixing or blending in batch processes for formulation of preparations and articles - (PROC5)

Product features (article)

Liquid.

Covers concentrations up to 5%

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.4 WORKERS EXPOSURE CONTROL - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities - (PROC8a)

Product features (article)

Liquid.

Covers concentrations up to 5%

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.5 WORKERS EXPOSURE CONTROL - Transfer of chemicals from/to vessels/ large containers at dedicated facilities - (PROC8b)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.6 WORKERS EXPOSURE CONTROL - Roller or brush application - (PROC10)

Product features (article)

Liquid.

Covers concentrations up to 1%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.

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

Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.7 WORKERS EXPOSURE CONTROL - Non-industrial spraying - (PROC11)

Product features (article)

Liquid.

Covers concentrations up to 1%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

Technical and organizational conditions and measures

Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.

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

Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.8 WORKERS EXPOSURE CONTROL - Low energy manipulation of substances bound in materials and/or articles - (PROC21)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

2.9 WORKERS EXPOSURE CONTROL - High (mechanical) energy work-up of substances bound in materials and/or articles - (PROC24)

Product features (article)

Liquid.

Covers concentrations up to 5%.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 8 h/day

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

Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specifications, refer to section 8 of the SDS.

Other conditions affecting worker exposure

Indoor use.

Assumes process temperature up to 40 °C

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1 ENVIRONMENTAL RELEASE AND EXPOSURE - Wide dispersive outdoor use of HALS resulting in inclusion into a matrix - (ERC8f)

Release route	Release rate	Release estimation method
Water	0.05 kg/day	ERC
Air	0.15 kg/day	ERC
Soil	5E-3 kg/day	ERC

Protection goal	Exposure estimate	RCR
Fresh water	1.64E-3 mg/L (EUSES 2.1.2)	0.746
Sediment (freshwater)	0.782 mg/kg dw (EUSES 2.1.2)	0.745
Sea water	1.64E-4 mg/L (EUSES 2.1.2)	0.745
Sediment (marine water)	0.078 mg/kg dw (EUSES 2.1.2)	0.71
Wastewater treatment plant	0.016 mg/L (EUSES 2.1.2)	0.016
Farmland	0.064 mg/kg dw (EUSES 2.1.2)	0.307
Man via environment - Inhalation (systemic effects)	2.79E-8 mg/m ³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.82E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes	-	< 0.01

3.2 ENVIRONMENTAL RELEASE AND EXPOSURE - Wide dispersive indoor use of HALS resulting in inclusion into a matrix - (ERC8c)

Release route	Release rate	Release estimation method
Water	0.014 kg/day	ERC
Air	6.75E-3 kg/day	ERC
Soil	0 kg/day	ERC

Protection goal	Exposure estimate	RCR
Fresh water	4.83E-4 mg/L (EUSES 2.1.2)	0.22
Sediment (freshwater)	0.23 mg/kg dw (EUSES 2.1.2)	0.219
Sea water	4.81E-5 mg/L (EUSES 2.1.2)	0.219
Sediment (marine water)	0.023 mg/kg dw (EUSES 2.1.2)	0.208
Wastewater treatment plant	4.32E-3 mg/L (EUSES 2.1.2)	< 0.01
Farmland	0.018 mg/kg dw (EUSES 2.1.2)	0.084
Man via environment - Inhalation (systemic effects)	2.77E-8 mg/m ³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	5.24E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes	-	< 0.01

3.3 WORKERS EXPOSURE - Mixing or blending in batch processes for formulation of preparations and articles - (PROC5)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.367 mg/m ³ (TRA Workers 3.0)	0.289
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.305
Combined, systemic, long term		0.593

3.4 WORKERS EXPOSURE - Transfer of chemicals from/to vessels/large containers at non dedicated facilities - (PROC8a)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.367 mg/m ³ (TRA Workers 3.0)	0.289
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.305
Combined, systemic, long term		0.593

3.5 WORKERS EXPOSURE - Transfer of chemicals from/to vessels/large containers at dedicated facilities - (PROC8b)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.367 mg/m ³ (TRA Workers 3.0)	0.289
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.305
Combined, systemic, long term		0.593

3.6 WORKERS EXPOSURE - Roller or brush application - (PROC10)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.97 mg/m ³ (TRA)	0.764
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.152
Combined, systemic, long term		0.916

3.7 WORKERS EXPOSURE - Non-industrial spraying - (PROC11)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.5 mg/m ³ (TRA)	0.394
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.595
Combined, systemic, long term		0.989

3.8 WORKERS EXPOSURE - Low energy manipulation of substances bound in materials and/or articles - (PROC21)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.2 mg/m ³ (ECETOC TRA Workers)	0.157
Dermal, systemic, long term	0.1 mg/kg bw/day (ECETOC TRA Workers)	0.056
Combined, systemic, long term		0.213

3.9 WORKERS EXPOSURE - High (mechanical) energy work-up of substances bound in materials and/or articles - (PROC24)

Route of exposure and type of effects	Estimated exposure	RCR
Inhalation, systemic, long term	0.6 mg/m ³ (ECETOC TRA Workers)	0.472
Dermal, systemic, long term	0.1 mg/kg bw/day (ECETOC TRA Workers)	0.056
Combined, systemic, long term		0.528

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

bis-[4-(2,3-epoxipropoxy)phenyl]propane

Substance identification

Chemical Name: bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS number: 1675-54-3

Date - Version: 29/12/2021 - 1.3

INDUSTRIAL USE - PROFESSIONAL USES: PUBLIC SECTOR (ADMINISTRATION, EDUCATION, ENTERTAINMENT, SERVICES, CRAFTS) (SU22).

1. TITLE SECTION

Exposure scenario name: Industrial use.

Structured short title: Professional uses: public sector (administration, education, entertainment, service, crafts) (SU22).

Substance: 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC number: 216-823-5

Registration number: 01-2119456619-26

ENVIRONMENT

SC 1: Use of non-reactive processing aid at industrial site (no inclusion in article) ERC4

WORKER

SC 2: Use as laboratory reagents PROC15

SC 3: Treatment of articles by dipping and pouring PROC13

SC 4: Tableting, compression, extrusion, pelletising, granulation PROC14

SC 5: General greasing/lubrication in high energy conditions PROC18

SC 6 Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8a

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. ENVIRONMENTAL EXPOSURE CONTROL: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Product features (article)

Physical form of the product: Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Daily amount per site: 0,6 ton/day

Annual amount per site: 20 ton/year

Conditions and measures related to sewage treatment plant

STP Type: Municipal wastewater treatment plant.

Learn more about STP: biological elimination.

STP sludge treatment: It may be landfilled when allowed by local regulations.

STP effluent: 2,000 m³/day

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18,000 m³/day

Outdoor / Indoor Indoor use.

2.2. WORKERS EXPOSURE CONTROL: Use as laboratory reagents (PROC15)

Product features (article)

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Temperature: < 40°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C

2.3. WORKERS EXPOSURE CONTROL: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 0%.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C

2.4. WORKERS EXPOSURE CONTROL: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Product features (article)

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Temperature: < 40°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C

2.5. WORKERS EXPOSURE CONTROL: General greasing/lubrication in high energy conditions (PROC18)

Product features (article)

Covers concentrations up to 20%.

Physical form of the product: Liquid.

Temperature: ≤ 800°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Outside.

Industrial or professional environments: Professional use.

Temperature: ≤ 800°C

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

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Outside.

Industrial or professional environments: Professional use.

Temperature: A process temperature of up to < 40°C is assumed.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Route release	Release rate	Method for estimating for release
water	1.2E-10kg/day	FEICA SPERC 5.1 a.v1
air	3E-4kg/day	FEICA SPERC 5.1 a.v1
Soil	0%	FEICA SPERC 5.1 a.v1

Protection target	Estimated Exposure (EUSES v2.1)	RCR
Fresh water	3.76E-4mg/l	0.063
Fresh water sediments	0.018mg/l	0.053
Sea water	2.95E-5mg/kg dry weight	0.049
Marine sediment	1.42E-3mg/kg dry weight	0.042
Sewage treatment plant	5.68E-11mg/l	< 0.01
Farmland	2.88E-6mg/kg dry weight	< 0.01
Prey for predators (freshwater)	mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	9.13E-4mg/kg wet weight	< 0.01
Main predator prey (marine water)	9.13E-4mg/kg wet weight	< 0.01
Prey for Predators (Terrestrial)	1.68E-4mg/kg wet weight	< 0.01
Man through the environment - inhalation	7.65E-9mg/m ³	< 0.01
Man through the environment - oral	3E-5mg/kgbw/day	< 0.01
Population exposed through the environment	-	< 0.01

3.2. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.993mg/m ³	0.201
inhalation	local	Long-term	0.993mg/m ³	-
inhalation	local	Short term	0.993mg/m ³	-
dermal	systemic	Long-term	0.172mg/kg bw/day	0.045
dermal	local	Short term	9.92E-3mg/cm ²	-
combined routes	-	-	-	0.247

3.3. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m ³	0.017
inhalation	local	Long-term	0.085mg/m ³	-
inhalation	local	Short term	0.085mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.06mg/cm ²	-
combined routes	-	-	-	0.566

3.4. Worker exposure: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.993mg/m ³	0.201
inhalation	local	Long-term	0.993mg/m ³	-
inhalation	local	Short term	0.993mg/m ³	-
dermal	systemic	Long-term	0.172mg/kg bw/day	0.229
dermal	local	Short term	0.0025mg/cm ²	-
combined routes	-	-	-	0.43

3.5. Worker exposure: General greasing/lubrication in high energy conditions (PROC18)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.596mg/m ³	0.121
inhalation	local	Long-term	0.596mg/m ³	-
inhalation	local	Short term	0.596mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.669

3.6. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.596mg/m ³	0.121
inhalation	local	Long-term	0.596mg/m ³	-
inhalation	local	Short term	0.596mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.669

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

PROFESSIONAL USE - PROFESSIONAL USES: PUBLIC SECTOR (ADMINISTRATION, EDUCATION, ENTERTAINMENT, SERVICES, CRAFTS) (SU22).

1. TITLE SECTION

Exposure scenario name: Professional.

Structured short title: Professional uses: public sector (administration, education, entertainment, service, crafts) (SU22).

Substance: 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC number: 216-823-5

Registration number: 01-2119456619-26

ENVIRONMENT

SC 1: Use at an industrial site leading to inclusion in article ERC5

WORKER

SC 2: Industrial spraying PROC7

SC 3 Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8a

SC 4: Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC8b

SC 5: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC9

SC 6: Application with rollers or brushes PROC10

SC 7: Non-industrial spraying PROC11

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. ENVIRONMENTAL EXPOSURE CONTROL: Use at an industrial site leading to inclusion in article (ERC5)

Product features (article)

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

Physical form of the product: Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Annual amount per site: 30,000 tons/year

Daily amount per site: 100 tons/day

Conditions and measures related to sewage treatment plant

STP Type: Municipal wastewater treatment plant.

Learn more about STP: biological elimination.

STP sludge treatment: It may be landfilled when allowed by local regulations.

STP effluent: 2,000 m³/day

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18,000 m³/day

2.2. WORKERS EXPOSURE CONTROL: Industrial spraying (PROC7)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

Wear suitable respirator.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Industrial or professional environments Professional use.

Temperature: Process temperature up to 70°C is assumed.

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

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 0%.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Industrial or professional environments Professional use.

Temperature: 70°C

2.4. WORKERS EXPOSURE CONTROL: Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities. (PROC8b)

Product features (article)

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: 70°C

2.5. WORKERS EXPOSURE CONTROL: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Covers concentrations up to 100%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 50°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 50°C

2.6. WORKERS EXPOSURE CONTROL: Application with rollers or brushes (PROC10)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Local exhaust ventilation.

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 90%.

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 70°C.

2.7. WORKERS EXPOSURE CONTROL: Non-industrial spraying (PROC11)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Temperature: < 40°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

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

Use adequate eye protection.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

Wear suitable respirator.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Environmental release and exposure: Use at an industrial site leading to inclusion in article (ERC5)

Route release	Release rate	Method for estimating for release
water	0.06 kg/day	FEICA SPERC 8c.1 b.v1
air	0 kg/day	FEICA SPERC 8c.1 b.v1
Soil	0%	FEICA SPERC 8c.1 b.v1

Protection target	Estimated Exposure (EUSES v2.1)	RCR
Fresh water	3.22E-3mg/l	0,536
Fresh water sediments	0.155mg/l	0,454
Sea water	3.14E-4mg/l	0,523
Marine sediment	0.015mg/kg dry weight	0,442
Sewage treatment plant	0.028mg/l	< 0.01
Farmland	0.05mg/kg dry weight	0,779
Prey for predators (freshwater)	0.048mg/kg wet weight	< 0.01
Prey for predators (marine water)	4.53E-3mg/kg wet weight	< 0.01
Main predator prey (marine water)	1.64E-3mg/kg wet weight	< 0.01
Prey for Predators (Terrestrial)	0.056mg/kg wet weight	< 0.01
Man through the environment - inhalation	Concentration in air: 3.45E-11 mg/m ³	< 0.01
Man through the environment - oral	1.47E-3mg/kg pc/giorno	< 0.01
Population exposed through the environment	-	< 0.01

3.2. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.34mg/m ³ (ART v1.5)	0.069
inhalation	local	Long-term	0.34mg/m ³ (ART v1.5)	-
inhalation	local	Short term	0.78mg/m ³ (ART v1.5)	-
dermal	systemic	Long-term	0.257mg/kgbw/day (ECETOC TRA worker v3)	0.343
dermal	local	Short term	0.012mg/cm ² (ECETOC TRA worker v3)	-
combined routes	-	-	-	0.412

3.3. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.851mg/m ³	0.173
inhalation	local	Long-term	0.851mg/m ³	-
inhalation	local	Short term	0.851mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.721

3.4. Worker exposure: Transfer of a substance or a mixture (fill/discharge) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m ³	0.017
inhalation	local	Long-term	0.085mg/m ³	-
inhalation	local	Short term	0.0851mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.566

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

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.099mg/m ³	0.02
inhalation	local	Long-term	0.099mg/m ³	-
inhalation	local	Short term	0.993mg/m ³	-
dermal	systemic	Long-term	0.343mg/kgbw/day	0.457
dermal	local	Short term	0.05mg/cm ²	-
combined routes	-	-	-	0.659

3.6. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m ³	0.017
inhalation	local	Long-term	0.085mg/m ³	-
inhalation	local	Short term	0.085mg/m ³	-
dermal	systemic	Long-term	0.165mg/kgbw/day	0.219
dermal	local	Short term	0.012mg/cm ²	-
combined routes	-	-	-	0.237

3.7. Worker exposure: Non-industrial spraying (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.34mg/m ³ (ART v1 .5)	0.069
inhalation	local	Long-term	0.34mg/m ³ (ART v1 .5)	-
inhalation	local	Short term	0.78mg/m ³ (ART v1 .5)	-
dermal	systemic	Long-term	0.643mg/kgbw/day (ECETOC TRA worker v3)	0.857
dermal	local	Short term	0.03mg/cm ² (ECETOC TRA worker v3)	-
combined routes	-	-	-	0.926

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Safety Data Sheet

FASSAFILL EPOXY COMP.B

Safety Data Sheet dated 17/07/2024 version 4



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

1.1. Product identifier

Mixture identification:

Trade name: FASSAFILL EPOXY COMP.B

Trade code: 1281.B

UFI: HRWQ-7RWA-4140-AGT0

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

Recommended use: Epoxy hardener; For professional use only

Uses advised against: Not intended for consumer use

1.3. Details of the supplier of the safety data sheet

Company: FASSA Srl

Via Lazzaris, 3 - 31027 Spresiano (TV) - Italy

Tel. +39 0422 7222

Fax +39 0422 887509

Imported in the UK:

FASSA UK LTD

Ashchurch Business Centre,

Alexandra Way, Ashchurch, Tewkesbury GL20 8TD- UK

Tel. +44 (0) 1684.212272

Responsible: laboratorio.spresiano@fassabortolo.it

1.4. Emergency telephone number

NHS 111

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Skin Corr. 1B Causes severe skin burns and eye damage.

Eye Dam. 1 Causes serious eye damage.

Skin Sens. 1 May cause an allergic skin reaction.

Aquatic Chronic 2 Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Hazard pictograms and Signal Word



Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/clothing and eye/face protection.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy

to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

Contains:

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Amines, polyethylenepoly-, triethylenetetramine fraction

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

Propylidynetrimethanol, propoxylated, reaction products with ammonia

N,N-dimethyl-1,3-diaminopropane

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

The product has been classified according to Regulation (EC) No 1272/2008 (CLP) as amended by UK CLP Regulation, UK SI 2019/720 and UK SI 2020/1567.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration $\geq 0.1\%$.

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FASSAFILL EPOXY COMP.B

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number:
$\geq 50 - < 60 \%$	Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	CAS:68082-29-1 EC:500-191-5	Skin Irrit. 2, H315; Eye Dam. 1, H318; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119972320-44-xxxx
$\geq 15 - < 20 \%$	Propylidynetrimethanol, propoxylated, reaction products with ammonia	CAS:39423-51-3 EC:500-105-6	Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Dam. 1, H318; Aquatic Chronic 2, H411	01-2119556886-20-xxxx
$\geq 12.5 - < 15 \%$	3-aminomethyl-3,5,5-trimethylcyclohexylamine	CAS:2855-13-2 EC:220-666-8 Index:612-067-00-9	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 Specific Concentration Limits: C $\geq 0.001\%$: Skin Sens. 1A H317 Acute Toxicity Estimate: ATE - Oral: 1030mg/kg bw	01-2119514687-32-xxxx
$\geq 1 - < 2.5 \%$	N,N-dimethyl-1,3-diaminopropane	CAS:109-55-7 EC:203-680-9	Flam. Liq. 3, H226; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1B, H317; Skin Corr. 1B, H314; Eye Dam. 1, H318; STOT SE 3, H335	01-2119486842-27-xxxx
$\geq 0.3 - < 0.5 \%$	Amines, polyethylenepoly-, triethylenetetramine fraction	CAS:90640-67-8 EC:292-588-2	Acute Tox. 4, H312; Acute Tox. 4, H302; Skin Corr. 1B, H314; Eye Dam. 1, H318; Skin Sens. 1, H317; Aquatic Chronic 3, H412	01-2119487919-13-xxxx

Classifications according to Regulation (EC) No 1272/2008 (CLP) as amended by UK CLP Regulation, UK SI 2019/720 and UK SI 2020/1567.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Remove contaminated clothing immediately and dispose off safely.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

The symptoms and effects are as expected from the hazards as shown in section 2.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

CO₂, powder extinguisher, foam, water spray.

Extinguishing media which must not be used for safety reasons:

Water jet.

5.2. Special hazards arising from the substance or mixture

Burning produces heavy smoke.

Do not inhale explosion and/or combustion gases (carbon monoxide, carbon dioxide, nitrogen oxides).

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

For emergency responders:

Wear personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

Material suitable for collection: inert absorbent material (e.g. sand, vermiculite)

After the product has been recovered, rinse the area and materials involved with water.

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Advice on general occupational hygiene:

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

See chapter 10.5

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

See chapter 1.2

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Predicted No Effect Concentration (PNEC) values

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

CAS: 68082-29-1 Exposure Route: Marine water; PNEC Limit: 0 mg/l

Exposure Route: Fresh Water; PNEC Limit: 0.004 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 3.84 mg/l

Exposure Route: Marine water sediments; PNEC Limit: 43.4 mg/kg

Exposure Route: Freshwater sediments; PNEC Limit: 434.02 mg/kg

Exposure Route: Soil; PNEC Limit: 86.78 mg/kg

Propylidynetrimethanol, propoxylated, reaction products with ammonia

CAS: 39423-51-3 Exposure Route: Fresh Water; PNEC Limit: 0.004 mg/l

Exposure Route: Marine water; PNEC Limit: 0 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 0.022 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.002 mg/kg

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l

Exposure Route: Soil (agricultural); PNEC Limit: 0.002 mg/kg

3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS: 2855-13-2 Exposure Route: Fresh Water; PNEC Limit: 0.06 mg/l

Exposure Route: Marine water; PNEC Limit: 0.006 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 3.18 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 5.784 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.578 mg/kg

Exposure Route: Soil (agricultural); PNEC Limit: 1.121 mg/kg

N,N-dimethyl-1,3-diaminopropane

CAS: 109-55-7 Exposure Route: Fresh Water; PNEC Limit: 0.073 mg/l

Exposure Route: Marine water; PNEC Limit: 0.007 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 0.735 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.073 mg/kg

Exposure Route: Soil (agricultural); PNEC Limit: 0.104 mg/kg

Amines, polyethylenepoly-, triethylenetetramine fraction

CAS: 90640-67-8 Exposure Route: Fresh Water; PNEC Limit: 0.027 mg/l

Exposure Route: Marine water; PNEC Limit: 0.003 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 0.13 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 8.572 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.857 mg/kg

Exposure Route: Soil (agricultural); PNEC Limit: 1.25 mg/kg

Derived No Effect Level (DNEL) values

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

CAS: 68082-29-1 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.9 mg/m³; Consumer: 0.97 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects

Worker Professional: 1.1 mg/kg; Consumer: 0.56 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 0.56 mg/kg

Propylidynetrimethanol, propoxylated, reaction products with ammonia

CAS: 39423-51-3 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4.9 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 0.5 mg/kg

N,N-dimethyl-1,3-diaminopropane

CAS: 109-55-7 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.2 mg/m³

Amines, polyethylenepoly-, triethylenetetramine fraction

CAS: 90640-67-8 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 0.54 mg/m³; Consumer: 0.096 mg/m³

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Worker Professional: 0.14 mg/kg

8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction.

Eye protection:

Eye glasses with side protection (EN 166).

Protection for skin:

Use suitable clothing that provides complete protection to the skin according to activity and exposure (EN 14605/EN 13982), e.g. overall, apron, safety shoes, suitable clothing.

Protection for hands:

There is no material or combination of materials for gloves that can guarantee unlimited resistance to any individual chemical or combination of chemicals.

For prolonged or repeated handling, use chemical resistant gloves.

Suitable materials for safety gloves (EN 374/EN 16523); NBR (Nitril rubber): thickness ≥ 0.4 mm; permeation time ≥ 480 min.
FKM (Fluorinated rubber): thickness ≥ 0.4 mm; permeation time ≥ 480 min

The choice of suitable gloves does not only depend on the material, but also on other quality characteristics that vary from one manufacturer to another and on the manner and times according to which the mixture is used.

Respiratory protection:

If workers are exposed to concentrations above the exposure limit they must use appropriate, certified respirators.

Combination filtering device (EN 14387).

Environmental exposure controls:

See point 6.2

Hygienic and Technical measures

See section 7.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance: thick liquid

Color: translucent

Odour: slightly ammoniacal

Odour threshold: N.D.

Melting point/freezing point: N.D.

Boiling point or initial boiling point and boiling range: N.D.

Flammability: Non-flammable

Lower and upper explosion limit: N.D.

Flash point: $> 93^{\circ}\text{C}$ (Internal assessment)

Auto-ignition temperature: N.D.

Decomposition temperature: N.D.

pH: $\geq 11.30 \leq 11.50$ (Internal method - 20% in water dispersion)

Kinematic viscosity: > 20.5 mm²/s (40 °C)

Density and/or relative density: 1.10 ± 0.02 kg/l (Internal method)

Relative vapour density: N.D.

Vapour pressure: N.D.
Solubility in water: miscible in all ratio
Solubility in oil: No data available
Partition coefficient n-octanol/water (log value): N.A.

Particle characteristics:

This product contains nanomaterials in spheroidal and amorphous form that are surface treated/coated.

9.2. Other information

Conductivity: N.D.
Explosive properties: N.D.
Oxidizing properties: N.D.
Evaporation rate: N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

The product can generate liquid phases over time.

10.3. Possibility of hazardous reactions

It may catch fire on contact with powerful oxidising agents.

It may generate flammable and/or toxic gases on contact with elementary metals (alkalis and alkaline earths), oxidising mineral acids, halogenated organic substances, organic peroxides and hydroperoxides, powerful oxidising agents, powerful reducing agents.

10.4. Conditions to avoid

Keep away from heat sources.

10.5. Incompatible materials

See chapter 10.3

10.6. Hazardous decomposition products

No hazardous decomposition products when stored and handled correctly.

See chapter 5.2

SECTION 11: Toxicological information

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

Information on hazard classes as defined in the retained Regulation (EC) No 1272/2008 (CLP) as amended by UK CLP Regulation, UK SI 2019/720 and UK SI 2020/1567.

Toxicological Information of the Preparation

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	The product is classified: Skin Corr. 1B(H314)
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)
d) respiratory or skin sensitisation	The product is classified: Skin Sens. 1(H317)
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

CAS: 68082-29-1 a) acute toxicity LD50 Oral Rat > 2000 mg/kg
LD50 Skin Rat > 2000 mg/kg

Propylidynetrimethanol, propoxylated, reaction products with ammonia

CAS: 39423-51-3 a) acute toxicity LD50 Oral Rat 550 mg/kg

LD50 Skin Rat > 1000 mg/kg

3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS: 2855-13-2 a) acute toxicity ATE - Oral: 1030 mg/kg bw

N,N-dimethyl-1,3-diaminopropane

CAS: 109-55-7 a) acute toxicity LD50 Oral Rat 922 mg/kg
LC50 Inhalation Rat > 4.31 mg/l 4h

Amines, polyethylenepoly-, triethylenetetramine fraction

CAS: 90640-67-8 a) acute toxicity LD50 Oral Rat 1716 mg/kg
LD50 Skin Rabbit 1465 mg/kg

11.2 Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration $\geq 0.1\%$

SECTION 12: Ecological information

Adopt good working practices, so that the product is not released into the environment.

12.1. Toxicity

Eco-Toxicological Information:

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

CAS: 68082-29-1 a) Aquatic acute toxicity: LC50 Fish 7.07 mg/l 96h
a) Aquatic acute toxicity: EC50 Daphnia 7.07 mg/l 48h
a) Aquatic acute toxicity: EC50 Algae 4.34 mg/l 72h

Propylidynetrimethanol, propoxylated, reaction products with ammonia

CAS: 39423-51-3 a) Aquatic acute toxicity: LC50 Fish > 100 mg/l 96h
a) Aquatic acute toxicity: EC50 Daphnia 13 mg/l 48h
a) Aquatic acute toxicity: ErC50 Algae 4.4 mg/l 72h
b) Aquatic chronic toxicity: NOEC Algae 1 mg/l 72h

3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS: 2855-13-2 a) Aquatic acute toxicity: LC50 Fish 110 mg/l 96h
a) Aquatic acute toxicity: EC50 Daphnia 23 mg/l 48h
a) Aquatic acute toxicity: EC50 Algae > 50 mg/l 72h

N,N-dimethyl-1,3-diaminopropane

CAS: 109-55-7 a) Aquatic acute toxicity: LC50 Fish 122 mg/l 96h
a) Aquatic acute toxicity: EC50 Daphnia 59.5 mg/l 48h
a) Aquatic acute toxicity: EC50 Algae 53.5 mg/l 72h

Amines, polyethylenepoly-, triethylenetetramine fraction

CAS: 90640-67-8 a) Aquatic acute toxicity: LC50 Fish 330 mg/l 96h
a) Aquatic acute toxicity: EC50 Daphnia 31.1 mg/l 48h
a) Aquatic acute toxicity: EC50 Algae 20 mg/l 72h

12.2. Persistence and degradability

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

CAS: 68082-29-1 Non-readily biodegradable

Propylidynetrimethanol, propoxylated, reaction products with ammonia

CAS: 39423-51-3 Non-readily biodegradable

3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS: 2855-13-2 Non-readily biodegradable

Amines, polyethylenepoly-, triethylenetetramine fraction

CAS: 90640-67-8 Non-readily biodegradable

12.3. Bioaccumulative potential

N.A.

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration $\geq 0.1\%$

12.6 Endocrine disrupting properties

No endocrine disruptor substances present in concentration $\geq 0.1\%$

12.7 Other adverse effects

N.A.

SECTION 13: Disposal considerations

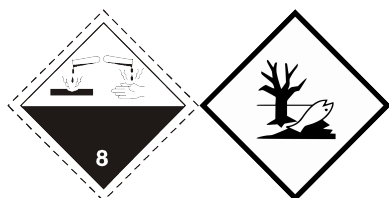
13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

Do not allow it to enter drains or watercourses.

Dispose of containers contaminated by the product in accordance with local or national legal provisions.

SECTION 14: Transport information



14.1. UN number or ID number

1759

14.2. UN proper shipping name

ADR-Shipping Name: CORROSIVE SOLID, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine)

IATA-Shipping Name: CORROSIVE SOLID, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine)

IMDG-Shipping Name: CORROSIVE SOLID, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine)

14.3. Transport hazard class(es)

ADR-Class: 8

IATA-Class: 8

IMDG-Class: 8

14.4. Packing group

ADR-Packing Group: II

IATA-Packing group: II

IMDG-Packing group: II

14.5. Environmental hazards

Most important toxic component: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-A, S-B

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR exempt:

ADR-Label: 8

ADR - Hazard identification number: 80

ADR-Special Provisions: 274

ADR-Transport category (Tunnel restriction code):

Air (IATA):

IATA-Passenger Aircraft: 859

IATA-Cargo Aircraft: 863

IATA-Label: 8

IATA-Subsidiary hazards: -

IATA-Erg: 8L

IATA-Special Provisions: A3 A803

Sea (IMDG):

IMDG-Stowage and handling: Category A

IMDG-Segregation: -

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: 274

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Directive 2010/75/EU

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 2020/878

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) n. 2020/217 (ATP 14 CLP)

Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Regulation (EU) n. 2021/643 (ATP 16 CLP)

Regulation (EU) n. 2021/849 (ATP 17 CLP)

Regulation (EU) n. 2022/692 (ATP 18 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: None.

Restrictions related to the substances contained: 40, 75

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
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Product belongs to category: E2	200	500
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Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

Class 3: extremely hazardous.

SVHC Substances:

On the basis of available data, the product does not contain any SVHC in percentage $\geq 0.1\%$.

Relevant EU provisions transposed through retained EU legislation:

UK REACH List of restrictions (Annex XVII);

UK REACH Candidate list of substances of very high concern (SVHC) for authorisation;

UK REACH List of substances subject to authorisation (Annex XIV);

Export and import of hazardous chemicals - Prior informed consent (PIC regulation).

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Code	Description
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4
3.2/1B	Skin Corr. 1B	Skin corrosion, Category 1B
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.4.2/1A	Skin Sens. 1A	Skin Sensitisation, Category 1A
3.4.2/1B	Skin Sens. 1B	Skin Sensitisation, Category 1B
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
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Skin Corr. 1B, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 2, H411	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold
Safety data sheets of raw materials suppliers.

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE: Acute Toxicity Estimate
ATEmix: Acute toxicity Estimate (Mixtures)
BEI: Biological Exposure Index
CAS: Chemical Abstracts Service (division of the American Chemical Society).
CAV: Poison Center
CE: European Community
CLP: Classification, Labeling, Packaging.
CMR: Carcinogenic, Mutagenic and Reprotoxic
COV: Volatile Organic Compound
CSA: Chemical Safety Assessment
CSR: Chemical Safety Report

DNEL: Derived No Effect Level.
EC50: Half Maximal Effective Concentration
ECHA: European Chemicals Agency
EINECS: European Inventory of Existing Commercial Chemical Substances.
ES: Exposure Scenario
GefStoffVO: Ordinance on Hazardous Substances, Germany.
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association.
IC50: half maximal inhibitory concentration
IMDG: International Maritime Code for Dangerous Goods.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
LDLo: Leathal Dose Low
N.A.: Not Applicable
N/A: Not Applicable
N/D: Not defined/ Not available
N.D.: Not available
NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TLV-TWA: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- SECTION 8: Exposure controls/personal protection
- SECTION 12: Ecological information

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Substance identification

Chemical Name: 3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS number: 2855-13-2

EU index number: 612-067-00-9

EINECS number: 220-666-8

ES1 Formulation or repackaging - INDUSTRIAL USES

1. TITLE SECTION

Exposure scenario name: Preparation and repackaging of substances and mixtures

Date - Version: 15/07/2020 - 1.0

Life cycle stage: Formulation or repackaging

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3) - Large-scale production of basic chemicals (including petroleum products) (SU8) - Formulation [blending] of preparations and/or repackaging (SU10)

Contributing scenario - Environment

CS1 Wet formulation: ERC2

Contributing scenario - Worker

CS2 Use in closed systems: PROC3

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Blend Operations: PROC5

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

Environmental release categories: Formulation of mixtures (ERC2)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use

Amounts used: Annual amount per site 2500 t

Release Type: Continuous release

Issue days: 300 days/year

Further environmental conditions:

Wet formulation

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

Measures and technical-organizational conditions

Control measures to prevent releases:

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP

STP effluent (m³/day): 8640

Conditions and measures for waste treatment (including the product waste)

Waste treatment: Do not spread industrial sludge on natural soils.

Other operational conditions affecting environmental exposure

Local seawater dilution factor: 100

Local fresh water dilution factor: 11

Flow rate of receiving surface water: 86400

Indoor use

2.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

Process categories: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 480 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment:

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency of: 95 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

2.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 240 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

2.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 480 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 97%

Body parts exposed: Palm of a hand. Possible skin contact is believed to be limited to the hands.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

2.5. CS5 Worker Contributing Scenario: Material Transfers (PROC9)

Process categories: Transfer of a substance or preparation (filling/emptying) (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 480 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand. Possible skin contact is believed to be limited to the hands.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

2.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 480 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
sea water	1,025 kg/day	ECETOC TRA environment v2.0	0.81

3.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	4,258 mg/m ³	ECETOC TRA worker v2.0	0.212

3.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706
by inhalation, systemic, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706

3.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	2,129 mg/m ³	ECETOC TRA worker v2.0	0.106
by inhalation, systemic, short-term	2,129 mg/m ³	ECETOC TRA worker v2.0	0.106

3.5. CS5 Worker Contributing Scenario: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	7,096 mg/m ³	ECETOC TRA worker v2.0	0.353
by inhalation, systemic, short-term	7,096 mg/m ³	ECETOC TRA worker v2.0	0.353

3.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	7,096 mg/m ³	ECETOC TRA worker v2.0	0.353
by inhalation, systemic, short-term	7,096 mg/m ³	ECETOC TRA worker v2.0	0.353

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ES2 Formulation or repackaging - PROFESSIONAL USES

1. TITLE SECTION

Exposure scenario name: Preparation and repackaging of substances and mixtures

Date - Version: 10/03/2020 - 1.0

Life cycle stage: Formulation or repackaging

Main user group: Professional uses

Sector(s) of use: Manufacture of bulk, large scale chemicals (including petroleum products) (SU8) - Formulation [mixing] of preparations and/or re-packaging (SU10) - Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet formulation: ERC2

Contributing scenario - Worker

CS2 Use in closed systems: PROC3

CS3 Material Transfers: PROC8a

CS3 Material Transfers: PROC8b

CS3 Material Transfers: PROC9

CS6 Blend Operations: PROC5

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.2. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

Environmental release categories: Formulation of mixtures (ERC2)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use

Amounts used: Annual amount per site 2500 t

Release Type: Continuous release

Issue days: 300 days/year

Further environmental conditions:

Wet formulation

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

Measures and technical-organizational conditions

Control measures to prevent releases:

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP

STP effluent (m³/day): 8640

Conditions and measures for waste treatment (including the product waste)

Waste treatment: Do not spread industrial sludge on natural soils.

Other operational conditions affecting environmental exposure

Local seawater dilution factor: 100

Local fresh water dilution factor: 11

Flow rate of receiving surface water: 86400

Indoor use

2.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

Process categories: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 480 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 95 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

2.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 240 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

2.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 240 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand. Possible skin contact is believed to be limited to the hands.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

2.5. CS5 Worker Contributing Scenario: Material Transfers (PROC9)

Process categories: Transfer of a substance or preparation (filling/emptying) (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 240 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand. Possible skin contact is believed to be limited to the hands.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

2.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 1.57 Pa

Amount used, frequency and duration of use/exposure

Duration: 60 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Technical organizational measures: For further data, see section 8 of the safety data sheet.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

Other operational conditions affecting worker exposure

Indoor use

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Palm of a hand. Possible skin contact is believed to be limited to the hands.

Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
sea water	1,025 kg/day	ECETOC TRA environment v2.0	0.81

3.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	8,515 mg/m ³	ECETOC TRA worker v2.0	0.424

3.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	7,096 mg/m ³	ECETOC TRA worker v2.0	0.353
by inhalation, systemic, short-term	7,096 mg/m ³	ECETOC TRA worker v2.0	0.353

3.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706
by inhalation, systemic, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706

3.5. CS5 Worker Contributing Scenario: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706
by inhalation, systemic, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706

3.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	14,192 mg/m ³	ECETOC TRA worker v2.0	0.706

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Amines, polyethylenepoly-, triethylenetetramine fraction

Substance identification

Chemical Name: Amines, polyethylenepoly-, triethylenetetramine fraction

CAS number: 90640-67-8

INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - INDUSTRIAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 15/07/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC4

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Spraying: PROC7

CS4 Material Transfers: PROC8a

CS5 Material Transfers: PROC8b

CS6 Material Transfers: PROC9

CS7 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

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

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 2114 kg/day

Release Type: Continuous release

Issue days: 220 days a year

Measures and technical-organizational conditions

Control measures to prevent releases: No specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6 Contributing Scenario CS6 - Worker: Material transfers (PROC9)

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

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.7 CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Additional conditions for human health: Limit the amount of substance in the product to 0.5%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.00317 mg/l	EUSES	0.017
fresh water sediment	1.6 mg/kg bw/day	EUSES	0.017
sea water	0.00042 mg/l	EUSES	0.008
Marine sediment	0.212 mg/kg bw/day	EUSES	0.008
ground	0.114 mg/kg bw/day	EUSES	0.006

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.128 mg/kg bw/day	N.d.	0.226
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.457
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.683

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.041 mg/kg bw/day	N.d.	0.072
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1,097 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.621

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.034 mg/kg bw/day	N.d.	0.06
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.096 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.609

3.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.068 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	1.22 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.706

3.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.082 mg/kg bw/day	N.d.	0.144
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.229
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN RIGID FOAM, COATINGS, ADHESIVES AND SEALANTS - INDUSTRIAL USE

1. TITLE SECTION

Exposure scenario name: Use in rigid foam, coatings, adhesives and sealants

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC4

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Spraying: PROC7

CS4 Material Transfers: PROC8a

CS5 Material Transfers: PROC8b

CS6 Material Transfers: PROC9

CS7 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

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

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 2114 kg/day

Release Type: Continuous release

Issue days: 220 days a year

Measures and technical-organizational conditions

Control measures to prevent releases: No specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

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

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Additional conditions for human health: Limit the amount of substance in the product to 0.5%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: -Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.00317 mg/l	EUSES	0.017
fresh water sediment	1.6 mg/kg bw/day	EUSES	0.017
sea water	0.00042 mg/l	EUSES	0.008
Marine sediment	0.212 mg/kg bw/day	EUSES	0.008
ground	0.114 mg/kg bw/day	EUSES	0.006

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.128 mg/kg bw/day	N.d.	0.226
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.457
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.683

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.041 mg/kg bw/day	N.d.	0.072
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.097 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.621

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.034 mg/kg bw/day	N.d.	0.06
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.096 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.609

3.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.068 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.706

3.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.082 mg/kg bw/day	N.d.	0.144
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.229
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

- INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - PROFESSIONAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Generalized use by professional operators

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8a - ERC8d

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). (ERC8a, ERC8d)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 15500kg/day

Release Type: Continuous release

Issue days: 300 days/year

Measures and technical-organizational conditions

Control measures to prevent releases: Preventive treatment of wastewater by neutralization. No other specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 15 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Inhalation - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

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

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Additional conditions for human health: Limit the amount of substance in the product to 2%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8a, ERC8d)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.0037 mg/l	EUSES	N.d.
fresh water sediment	1.6 mg/kg bw/day	EUSES	N.d.
sea water	0.00042 mg/l	EUSES	N.d.
Marine sediment	0.212 mg/kg bw/day	EUSES	N.d.
ground	0.114 mg/kg bw/day	EUSES	N.d.

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.09 mg/kg bw/day	N.d.	0.15
by inhalation, systemic, long-term	0.61 mg/m ³	N.d.	0.609
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.76

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	0.243 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.498

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN RIGID FOAM, COATINGS, ADHESIVES AND SEALANTS - PROFESSIONAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Use in rigid foam, coatings, adhesives and sealants

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8a - ERC8d

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). (ERC8a, ERC8d)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 15500kg/day

Release Type: Continuous release

Issue days: 300 days/year

Measures and technical-organizational conditions

Control measures to prevent releases: Preventive treatment of wastewater by neutralization. No other specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 15 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Inhalation - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 0.5 %

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: No specific measures identified.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

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

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

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

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8a, ERC8d)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.0037 mg/l	EUSES	N.d.
fresh water sediment	1.6 mg/kg bw/day	EUSES	N.d.
sea water	0.00042 mg/l	EUSES	N.d.
Marine sediment	0.212 mg/kg bw/day	EUSES	N.d.
ground	0.114 mg/kg bw/day	EUSES	N.d.

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.09 mg/kg bw/day	N.d.	0.15
by inhalation, systemic, long-term	0.61 mg/m ³	N.d.	0.609
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.76

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

Substance identification

Chemical Name: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine
CAS number: 68082-29-1

USE AT INDUSTRIAL USES

1. TITLE SECTION

Exposure scenario name: Industrial production of varnishes and enamels - Industrial application of coatings and paints - Use in rigid foam, coatings, adhesives and sealants - Use in composite and foundry materials

Date - Version: 03/12/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC5

Contributing scenario - Worker

CS2 Hardening: PROC4

CS3 Spraying - Dermal Exposure Assessment: PROC7

CS4 Spraying - Dermal Exposure Assessment: PROC7

CS5 Material transfers: PROC8b

CS6 Material Transfers: PROC9

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC5)

Environmental release categories: Industrial use leading to inclusion into/onto an article (ERC5)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 3.33 tons/day - Yearly amount per site 999 tons/year

Release Type: Continuous release

Issue days: 300 days/year

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP - Water: minimum efficiency of 91.34%

STP effluent (m³/day): 2000

Conditions and measures for waste treatment (including the product waste)

Waste treatment: No specific measures identified.

Other operational conditions affecting environmental exposure

Flow rate of receiving surface water: 18000 m³/day

2.2. Contributing Scenario CS2 - Worker: Curing (PROC4)

Process categories: Chemical production where opportunity for exposure arises (PROC4)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 90%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands.

2.3. Contributing Scenario CS3 - Spraying: Dermal Exposure Assessment (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 95%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.4. Contributing Scenario CS4 - Spraying: Inhalation Exposure Assessment (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 7.9E-08 Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: For each application, avoid using for a duration exceeding 480 min.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment: Wear suitable respiratory protection. Inhalation - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Room size: Covers use in a room size of 300m².

Temperature: Includes use at room temperature.

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

Additional conditions for human health: Moderate amount used (0.3-3 l/minute)

Learn more about good practices. The obligations set out in the REACH Regulation in Article 37(4) do not apply.

Further information on good practices: Use a splash guard. For further data, see section 8 of the safety data sheet. Wear suitable respiratory protection.

2.5. Contributing Scenario CS5 - Worker: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 95%

Inhalation - minimum efficiency 95%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.6. Contributing Scenario CS6 - Worker: Material Transfers (PROC9)

Process categories: Transfer of a substance or preparation (filling/emptying) (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 90%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC5)

Release route	Release rate	Release evaluation method
Water	0.666 kg/day	spERC
Air	8.325 kg/day	spERC
Ground	0.01 %	spERC

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.001 mg/l	N.d.	0.279
fresh water sediment	121.3 mg/kg dry weight	N.d.	0.279
sea water	0.0001251 mg/l	N.d.	0.288
Marine sediment	12.51 mg/kg dry weight	N.d.	0.288
agricultural land	7.992 mg/kg dry weight	N.d.	0.292
environmentally exposed people - Inhalation	0.002 mg/m ³	N.d.	< 0.01
environmentally exposed people - Oral	208.8 mg/kg bw/day	N.d.	372.8
All ways	N.d.	N.d.	372.8

3.2. Contributing Scenario CS2 - Worker: Curing (PROC4)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.17 mg/m ³	ECETOC TRA worker v2.0	0.044
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.051

3.3. Contributing Scenario CS3 - Spraying: Dermal Exposure Assessment (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.21 mg/m ³	ECETOC TRA worker v2.0	0.054
skin contact, systemic, long-term	0.027 mg/kg bw/day	ECETOC TRA worker v2.0	0.024
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.078

3.4. Contributing Scenario CS4 - Spraying: Inhalation Exposure Assessment (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.21 mg/m ³	ECETOC TRA worker v2.0	0.054
skin contact, systemic, long-term	0.027 mg/kg bw/day	ECETOC TRA worker v2.0	0.024
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.078

3.5. Contributing Scenario CS5 - Worker: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.085 mg/m ³	ECETOC TRA worker v2.0	0.022
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.03

3.6. Contributing Scenario CS6 - Worker: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.17 mg/m ³	ECETOC TRA worker v2.0	0.044
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.051

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

GENERALIZED USE BY PROFESSIONAL OPERATORS

1. TITLE SECTION

Exposure scenario name: Industrial production of varnishes and enamels - Industrial application of coatings and paints - Use in rigid foam, coatings, adhesives and sealants - Use in composite and foundry materials

Date - Version: 03/12/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Generalized use by professional traders

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8C

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8b

CS4 Material Transfers: PROC9

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC8c)

Environmental release categories: Widespread use resulting in an inclusion into or onto the surface of an article (indoor use) (ERC8c)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity at site 0.0005494 tons/day

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP - Water: minimum efficiency of 91.34%

STP effluent (m³/day): 2000

Conditions and measures for waste treatment (including the product waste)

Waste treatment: No specific measures identified.

Other operational conditions affecting environmental exposure

Flow rate of receiving surface water: 18000 m³/day

2.2. Contributing Scenario CS2 - Worker: Blending Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands.

2.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.4. CS4 Worker Contributing Scenario: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC8c)

Release route	Release rate	Release evaluation method
Water	0.008 kg/day	spERC
Air	0 %	spERC
Ground	0 %	spERC

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	7.3E-05 mg/l	N.d.	0.017
fresh water sediment	7.301 mg/kg dry weight	N.d.	0.017
sea water	1.113E-05 mg/l	N.d.	0.026
Marine sediment	1.113 mg/kg dry weight	N.d.	0.026
agricultural land	7.318 mg/kg dry weight	N.d.	0.084
environmentally exposed people - Inhalation	9.158E-07 mg/m ³	N.d.	< 0.01
environmentally exposed people - Oral	190.8 mg/kg bw/day	N.d.	340.7
All ways	N.d.	N.d.	340.7

3.2. Contributing Scenario CS2 - Worker: Blending Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

3.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

3.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

4 GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Propylidynetrimethanol, propoxylated, reaction products with ammonia

Substance identification

CAS number: 39423-51-3

PROFESSIONAL USES

1. TITLE SECTION

Exposure scenario name: Professional uses.

Date - Version: 05/17/2023 - 3.0

Contributing scenario - Environment

SC1 Wide dispersive external use resulting in being included in item (Indoors) ERC8c

SC2 Wide dispersive external use resulting in being included in item (In outdoor environments) ERC8f

Contributing scenario - Worker

SC3 Mixing or blending in batch processes PROC5

SC4 Transfer of a substance or mixture (charging/discharging) at non-dedicated facilities PROC8a

SC5 Transfer of a substance or a mixture (charging/discharging) at dedicated facilities PROC8b

SC6 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC9

SC7 Application with rollers or brushes PROC10

SC8 Non-industrial spraying PROC11

SC9 Treatment of articles by dipping and pouring PROC13

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Environmental exposure control: Wide dispersive external use resulting in being included in item (Indoors) - ERC8c

Amounts used (or contained in item), frequency and duration of use/exposure

Yearly amount used in EU: 999 tons/year

Daily amount per site: 0,547397 kg/day

Fraction of EU tonnage used in region: 0.1

Maximum allowable site tonnage (Msafe): Daily amount per site 2004,1 kg/day

Critical compartment for Msafe: Risk from environmental exposure is determined by microbes in the wastewater treatment plant.

Maximum allowable site tonnage (Msafe): Daily amount per site 7.2 kg/day

Critical compartment for Msafe: Risk from environmental exposure is driven by fresh water, freshwater sediment, marine water and marine water sediment.

Maximum allowable site tonnage (Msafe): Daily amount per site 10.9 kg/day

Critical compartment for Msafe: Risk from environmental exposure is driven by soil.

Maximum allowable site tonnage (Msafe): Daily amount per site 23924.1 kg/day

Critical compartment for Msafe: Risk from environmental exposure is determined by humans through indirect exposure (mainly from ingestion).

Days of emission: 365

Conditions and measures for the waste water treatment plant

Type of STP: Municipal wastewater treatment plant

STP effluent: 2000m³/day

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18 000 m³/day

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

2.2. Environmental exposure control: Wide dispersive external use resulting in being included in item (In outdoor environments) - ERC8f

Amounts used (or contained in item), frequency and duration of use/exposure

Yearly amount used in EU: 999 tons/year

Daily amount per site: 0,547397 kg/day

Fraction of EU tonnage used in region: 0.1

Maximum allowable site tonnage (Msafe): Daily amount per site 7.2 kg/day

Critical compartment for Msafe: Risk from environmental exposure is driven by fresh water, freshwater sediment, marine water and marine water sediment.

Maximum allowable site tonnage (Msafe): Daily amount per site 15.4 kg/day

Critical compartment for Msafe: Risk from environmental exposure is driven by soil.

Maximum allowable site tonnage (Msafe): Daily amount per site 23924.1 kg/day

Critical compartment for Msafe: Risk from environmental exposure is determined by humans through indirect exposure (mainly from ingestion).

Days of emission: 365

Conditions and measures for the waste water treatment plant

Type of STP: none

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18 000 m³/day

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

2.3. Worker Exposure Control: Mixing or blending in batch processes - PROC5

Product features (article)

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20°C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 480 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

Inhalation - minimum yield of 95 %

Wear chemically resistant gloves in combination with employee training. (EN374)

Dermal - minimum efficiency of 80%.

Other conditions affecting worker exposure

Body parts exposed: Palms 480 cm²

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

2.4. Worker Exposure Control: Transfer of a substance or mixture (charging/discharging) at non-dedicated facilities - PROC8a

Product features (article)

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20°C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 240 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

Inhalation - minimum yield of 90 %

Wear chemically resistant gloves in combination with employee training. (EN374)

Dermal - minimum efficiency of 80%.

Other conditions affecting worker exposure

Body parts exposed: Both hands 960 cm²

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

2.5. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities - PROC8b

Product features (article)

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20°C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 240 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90 %

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (EN374)

Dermal - minimum efficiency of 80%.

Other conditions affecting worker exposure

Body parts exposed: Both hands 960 cm²

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

2.6. Worker Exposure Control: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - PROC9

Product features (article)

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20 °C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 240 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90 %

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

Inhalation - minimum yield of 90 %

Other conditions affecting worker exposure

Body parts exposed: Palms 480 cm²

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

2.7. Worker Exposure Control: Application with rollers or brushes - PROC10

Product features (article)

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20 °C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 480 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

Inhalation - minimum yield of 95 %

Wear chemically resistant gloves in combination with employee training. (EN374)

Dermal - minimum efficiency of 80%.

Other conditions affecting worker exposure

Body parts exposed: Both hands 960 cm²

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

2.8. Worker Exposure Control: Non-industrial spraying - PROC11

Product features (article)

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20 °C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 60 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

Inhalation - minimum yield of 95 %

Wear chemically resistant gloves in combination with employee training. (EN374)

Dermal - minimum efficiency of 90%.

Other conditions affecting worker exposure

Body parts exposed: 1500 cm² (both hands and forearms)

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

2.9. Worker Exposure Control: Treatment of articles by dipping and pouring - PROC13

Product features (article)

Covers percentage substance in the product up to 25 %.

Physical form of the product: Liquid blend

Vapour pressure: 0.0023 Pa

Temperature: 20 °C

Amounts used (or contained in item), frequency and duration of use/exposure

Duration: Frequency and duration of use 480 min

Frequency of use: 5 days/week

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Inhalation - minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

Inhalation - minimum yield of 95 %

Wear chemically resistant gloves in combination with employee training. (EN374)

Dermal - minimum efficiency of 80%.

Other conditions affecting worker exposure

Body parts exposed: Palms 480 cm²

Indoor and outdoor use: Inside.

Industrial or professional environments: Professional use.

Temperature: 20 °C

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Environmental release and exposure: Wide dispersive external use resulting in being included in item (Indoors) - ERC8c

Release route	Release rate%	Release evaluation method
Water	1	Environmental Release Category (ERC)
Air	15	Environmental Release Category (ERC)
Soil	0	Environmental Release Category (ERC)

Protection target	Estimated exposure	RCR
Sewage treatment plant	0.0027313mg/l	< 0.001
Fresh water	0.0003326mg/l	0.076
Fresh water sediments	0.0016965mg/kg dry weight	0.076
Sea water	0.0000335mg/l	0.076
marine sediments	0.0001707mg/kg dry weight	0.076
Soil	0.0000958mg/kg dry weight	0.05
Secondary poisoning	0.0002765mg/kg body weight/day	< 0.001

3.2. Environmental release and exposure: Wide dispersive external use resulting in being included in item (In outdoor environments) - ERC8f

Release route	Release rate%	Release evaluation method
Water	1	Environmental Release Category (ERC)
Air	15	Environmental Release Category (ERC)
Soil	0.5	Environmental Release Category (ERC)

Protection target	Estimated exposure	RCR
Fresh water	0.0003332mg/l	0.076
Fresh water sediments	0.0016993mg/kg dry weight	0.076
Sea water	0.0000335mg/l	0.076
marine sediments	0.000171mg/kg dry weight	0.076
Soil	0.0000677mg/kg dry weight	0.036
Secondary poisoning	0.0002769mg/kg body weight/day	< 0.001

3.3. Worker exposure: Mixing or blending in batch processes - PROC5

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.686 mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.171

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.003 mg/m³ (EASY TRA v3.6)

RCR: < 0.001

3.4. Worker exposure: Transfer of a substance or mixture (charging/discharging) at non-dedicated facilities - PROC8a

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.686 mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.171

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.004 mg/m³ (EASY TRA v3.6)

RCR: < 0.001

3.5. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities - PROC8b

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.686 mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.171

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.019 mg/m³ (EASY TRA v3.6)

RCR: 0.004

3.6. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - PROC9

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 1.714mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.429

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.004 mg/m³ (EASY TRA v3.6)

RCR: < 0.001

3.7. Worker exposure: Application with rollers or brushes - PROC10

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 1.371 mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.343

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.003 mg/m³ (EASY TRA v3.6)

RCR: < 0.001

3.8. Worker exposure: Non-industrial spraying - PROC11

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 2.679 mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.67

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.642 mg/m³ (EASY TRA v3.6)

RCR: 0.13

3.9. Worker exposure: Treatment of articles by dipping and pouring - PROC13

Exposure routes: Dermal

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.686 mg/kg body weight/day (EASY TRA v3.6)

RCR: 0.171

Exposure routes: Inhalation

Health effect: systemic

Exposure indicator: Long-term

Estimated exposure: 0.003 mg/m³ (EASY TRA v3.6)

RCR: <0.001

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

N,N-dimethyl-1,3-diaminopropane

Substance identification

Chemical Name: N,N-dimethyl-1,3-diaminopropane

CAS number: 109-55-7

GENERALIZED USE BY PROFESSIONAL OPERATORS

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 17/03/2020 - 1.0

Life cycle stage: Generalized use by professional operators

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8c

Contributing scenario - Worker

CS2 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8c)

Environmental release categories: Generalized use with subsequent inclusion in or on the surface of an article (indoor use) (ERC8c)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Release Type: Continuous release

Issue days: 365 days/year

Measures and technical-organizational conditions

Used sewage treatment plant.

Exhaust gas treatment with thermal oxidation.

Do not use sewage sludge with fertilizer. The sludge is disposed of or recovered.

Do not spread industrial sludge on natural soils. Aerobic biological treatment.

Conditions and measures relating to municipal sewage treatment plants

Type of sewage treatment plant (STP): Municipal STP

STP effluent (m³/day): 2000

Other operational conditions affecting environmental exposure

Local seawater dilution factor: 100

Local fresh water dilution factor: 10

Flow rate of receiving surface water: 18000 m³/day

2.2. CS2 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 590 Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: 240 min

Frequency: 5 days/week

Measures and technical-organizational conditions

Provide supplementary ventilation to points where emissions occur. Inhalation - minimum efficiency of 80%.

Ensure that skin contact is avoided.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Avoid direct contact with the product, even with contaminated hands.

Skin contact with the substance is to be excluded.

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

Personal protective equipment:

Wear adequate eye protection.

Wear suitable gloves, tested according to EN347.

Wear suitable respiratory protection. Inhalation - minimum efficiency of: 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: Assumes a process temperature up to 20°C.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8c)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
Marine sediment	19.1 kg/day	N.d.	0.001434

3.2. CS2 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, short-term	0.5109 mg/m ³	ECETOC TRA Worker v3	0.42575

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.