

Safety Data Sheet

Conforms to Regulation (EC) No. 1907/2006 (REACH), Article 31, Annex II, as amended by Commission Regulation (EU) 2020/878

FACTORY COLORFLOW EP (A)

Date of first edition: 9/24/2021

Safety Data Sheet dated 14/09/2026 version 6

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

1.1. Product identifier

Mixture identification:

Trade name: FACTORY COLORFLOW EP (A)

Trade code: 001051001

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

Recommended use: resin; Restricted to professional users

Uses advised against: All uses other than recommended ones; Not intended for use by private individuals or non-professionals

1.3. Details of the supplier of the safety data sheet

Company: KERAKOLL S.p.A.

Via dell'Artigianato, 9

41049 Sassuolo (MODENA) - ITALY

Tel. +39 0536 816511 Fax. +39 0536816581

safety@kerakoll.com

1.4. Emergency telephone number

European emergency phone number 112

Ireland Emergency medical information: (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.

Members of the public Number (8 am-10 pm): +353 (0)1 809 2166

Healthcare professional telephone Number (24hrs): +353 (0)1 809 2566

Malta In case of emergency call: +356 2395 2000 (24h)

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. 1B	May cause an allergic skin reaction.
Repr. 1B	May damage fertility or the unborn child.
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.
H360	May damage fertility or the unborn child.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/clothing and eye/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P501	Dispose of contents/container in accordance with applicable regulations.

Special Provisions:

EUH208	Contains bis-[4-(2,3-epoxipropoxy)phenyl]propane. May produce an allergic reaction.
EUH208	Contains 1,3 Propanediol 2,2-bis(hydroxymethyl)-polymer with 2-(chloromethyl)oxirane. May produce an allergic reaction.
EUH208	Contains 4-morpholinecarbaldehyde. May produce an allergic reaction.
EUH208	Contains Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane. May produce an allergic reaction.

Contains

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

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

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

None.

2.3. Other hazards

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

Other Hazards: Crystalline silica in breathable fraction present in the product does not contribute to the hazard classification according to the criteria laid down by the EC Regulation 1272/2008 (CLP) by virtue of the physical state of the product itself (liquid/solid paste) as it is marketed and reasonably be expected to be used. (Position IMA-Europe, Classification of mixtures in liquid form containing crystalline silica (May 2020)). The liquid/solid paste mixture, due to hardening or exposure to heat, can lose its liquid content (water and other liquid components) and appear in a solid state; in case of handling of the solid mixture for disposal (non-compliant product) in so doing, comply with the local and national regulations currently in force.

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FACTORY COLORFLOW EP (A)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
$\geq 10 < 20 \%$	bis-[4-(2,3-epoxipropoxy)phenyl]propane	CAS:1675-54-3 EC:216-823-5 Index:603-073-00-2	Eye Irrit. 2, H319; Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411, M-Chronic:1	01-2119456619-26
			Specific Concentration Limits: C $\geq 5\%$: Eye Irrit. 2 H319 C $\geq 5\%$: Skin Irrit. 2 H315	
$\geq 5 < 10 \%$	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	EC:701-263-0	Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411, M-Chronic:1	01-2119454392-40
$\geq 5 < 10 \%$	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. 1B, H317; Repr. 1B, H360F	01-2119485289-22

≥3-<5 %	1,3 Propanediol 2,2-bis(hydroxymethyl)-polymer with 2-(chloromethyl)oxirane	CAS:30973-88-7 EC:608-564-5	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	
≥3-<5 %	Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)	CAS:933999-84-9 EC:618-939-5	Skin Irrit. 2, H315; Skin Sens. 1, H317; Eye Irrit. 2, H319; Repr. 1B, H360F; Aquatic Chronic 3, H412	01-2119463471-41
≥3-<5 %	Quartz	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	
≥0.3-<0.5 %	4-morpholinecarbaldehyde	CAS:4394-85-8 EC:224-518-3	Skin Sens. 1B, H317	01-2119987993-12
<0.01 %	phosphoric acid	CAS:7664-38-2 EC:231-633-2 Index:015-011-00-6	Skin Corr. 1B, H314 Specific Concentration Limits: 10% ≤ C < 25%: Eye Irrit. 2 H319 10% ≤ C < 25%: Skin Irrit. 2 H315 C ≥ 25%: Skin Corr. 1B H314	01-2119485924-24
<0.0015 %	methanol	CAS:67-56-1 EC:200-659-6 Index:603-001-00-X	Flam. Liq. 2, H225; STOT SE 1, H370; Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 Specific Concentration Limits: C ≥ 10%: STOT SE 1 H370 3% ≤ C < 10%: STOT SE 2 H371	01-2119433307-44

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

- Immediately take off all contaminated clothing.
- Remove contaminated clothing immediately and dispose off safely.
- After contact with skin, wash immediately with soap and plenty of water.

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

Eye irritation
Eye damages
Skin Irritation
Erythema

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:

- Water.
- Carbon dioxide (CO₂).

Extinguishing media which must not be used for safety reasons:

- None in particular.

5.2. Special hazards arising from the substance or mixture

- Do not inhale explosion and combustion gases.
- Burning produces heavy smoke.

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.
- Retain contaminated washing water and dispose it.
- In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
- Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

- Suitable material for taking up: absorbing material, organic, sand
- Wash with plenty of water.

6.4. Reference to other sections

- See also section 8 and 13
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Avoid contact with skin and eyes, inhalation of vapours and mists.
- Exercise the greatest care when handling or opening the container.
- 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.
- Contaminated clothing should be changed before entering eating areas.
- Do not eat or drink while working.
- See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

- None in particular.

Instructions as regards storage premises:

- Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

- None in particular

Industrial sector specific solutions:

- None in particular
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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

Quartz

CAS: 14808-60-7	ACGIH	Long Term: 0.025 mg/m ³ (8h) Notes: R, A2 - Pulm fibrosis, lung cancer
	NATION BELGIUM AL	Long Term: 0.1 mg/m ³ Notes: C Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION DENMARK AL	Long Term: 0.3 mg/m ³ Notes: alveolijae, liite 3 Source: BEK nr 2203 af 29/11/2021
		Long Term: 0.1 mg/m ³ Notes: EK Source: BEK nr 2203 af 29/11/2021
	NATION SPAIN AL	Long Term: 0.3 mg/m ³ Notes: Respirable fraction Source: LEP 2022

NATION ESTONIA AL	Long Term: 0.1 mg/m ³ Notes: 1, C Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATION FINLAND AL	Long Term: 0.05 mg/m ³ Notes: alveolijae, liite 3 Source: HTP-ARVOT 2020
NATION FRANCE AL	Long Term: 0.1 mg/m ³ Notes: La VLEP s'applique à la fraction alvéolaire. Forme de silice cristalline. Source: INRS outil65, article R. 4412-149 du Code du travail
NATION HUNGARY AL	Long Term: 0.1 mg/m ³ Source: 5/2020. (II. 6.) ITM rendelet
NATION IRELAND AL	Long Term: 0.1 mg/m ³ Notes: Respirable fraction Source: 2021 Code of Practice
NATION ITALY AL	Long Term: 0.1 mg/m ³ Notes: Polvere di silice cristallina respirabile (frazione inalabile). Rif:D.Lgs 81/2008 Source: D.lgs. 81/2008, Allegato XLIII
NATION LITHUANIA AL	Long Term: 0.1 mg/m ³ Notes: Žiūrėti 1 priedo 3 punktą. Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATION NETHERLAND AL S	Long Term: 0.075 mg/m ³ Notes: (2) Source: Arbeidsomstandighedenregeling - Lijst B1
NATION NORWAY AL	Long Term: 0.3 mg/m ³ Notes: K 7 Source: FOR-2021-06-28-2248
	Long Term: 0.05 mg/m ³ Notes: K G 7 21 Source: FOR-2021-06-28-2248
NATION POLAND AL	Long Term: 0.1 mg/m ³ Notes: 6) Source: Dz.U. 2018 poz. 1286
NATION SWEDEN AL	Long Term: 0.1 mg/m ³ Notes: C, M, 3 Source: AFS 2021:3
SUVA SWITZERLAND D	Long Term: 0.15 mg/m ³ Notes: TWA mg/m ³ : (a), C1A, SSC, P, Cancpulm Silicose / Lugenkrebs Silikose, HSE NIOSH OSHA Source: suva.ch/valeurs-limites
Calcium carbonate CAS: 471-34-1	
NATION FRANCE AL	Long Term: 10 mg/m ³ Source: INRS outil65
NATION CROATIA AL	Long Term: 10 mg/m ³ Notes: U Source: NN 1/2021
	Long Term: 4 mg/m ³ Notes: R Source: NN 1/2021
NATION HUNGARY AL	Long Term: 10 mg/m ³ Notes: inhalable aerosol Source: 5/2020. (II. 6.) ITM
NATION IRELAND AL	Long Term: 10 mg/m ³ Notes: Inhalable fraction Source: 2021 Code of Practice
	Long Term: 4 mg/m ³ Notes: Respirable fraction Source: 2021 Code of Practice
NATION LATVIA AL	Long Term: 6 mg/m ³ Source: KN325P1

Quartz CAS: 14808-60-7	NATION POLAND AL	Long Term: 10 mg/m ³ Notes: 4) Source: Dz.U. 2018 poz. 1286
	SUVA SWITZERLAND D	Long Term: 3 mg/m ³ Notes: TWA mg/m ³ : (a), Formel / Formal, NIOSH Source: suva.ch/valeurs-limites
Quartz CAS: 14808-60-7	ACGIH	Long Term: 0.025 mg/m ³ (8h) Notes: R, A2 - Pulm fibrosis, lung cancer
	EU	Long Term: 0.1 mg/m ³ Notes: Polvere di silice cristallina respirabile, frazione inalabile. (R), A2 - Pulm fibrosis, lung cancer. Directive 2017/2398
	NATION AUSTRIA AL	Long Term: 0.05 mg/m ³ Notes: MAK, III C, A Source: BGBl. II Nr. 156/2021
	NATION BELGIUM AL	Long Term: 0.1 mg/m ³ Notes: C Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION DENMARK AL	Long Term: 0.3 mg/m ³ Source: BEK nr 2203 af 29/11/2021
		Long Term: 0.1 mg/m ³ Notes: EK Source: BEK nr 2203 af 29/11/2021
	NATION SPAIN AL	Long Term: 0.05 mg/m ³ (8h) Notes: Respirable fraction Source: LEP 2022
	NATION ESTONIA AL	Long Term: 0.1 mg/m ³ Notes: 1, C Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATION FINLAND AL	Long Term: 0.05 mg/m ³ Notes: alveolijae, liite 3 Source: HTP-ARVOT 2020
	NATION FRANCE AL	Long Term: 0.1 mg/m ³ Notes: La VLEP s'applique à la fraction alvéolaire. Forme de silice cristalline. Source: INRS outil65, article R. 4412-149 du Code du travail
	NATION CROATIA AL	Long Term: 0.1 mg/m ³ Source: NN 1/2021
	NATION HUNGARY AL	Long Term: 0.1 mg/m ³ (8h) Notes: Respirable aerosol Source: 5/2020. (II. 6.) ITM rendelet
	NATION IRELAND AL	Long Term: 0.1 mg/m ³ (8h) Notes: Respirable fraction Source: 2021 Code of Practice
	NATION ITALY AL	Long Term: 0.1 mg/m ³ (8h) Notes: Polvere di silice cristallina respirabile (frazione inalabile). D.Lgs 81/2008 Source: D.lgs. 81/2008, Allegato XLIII
	NATION LITHUANIA AL	Long Term: 0.1 mg/m ³ Notes: Žiūrėti 1 priedo 3 punktą. Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATION NETHERLAND AL S	Long Term: 0.075 mg/m ³ Notes: (2) Source: Arbeidsomstandighedenregeling - Lijst B1
	NATION NORWAY AL	Long Term: 0.3 mg/m ³ Notes: K 7 Source: FOR-2021-06-28-2248
		Long Term: 0.05 mg/m ³ Notes: K G 7 21 Source: FOR-2021-06-28-2248

Titanium dioxide CAS: 13463-67-7	NATION POLAND AL	Long Term: 0.1 mg/m3 Notes: 6) Source: Dz.U. 2018 poz. 1286
	NATION SWEDEN AL	Long Term: 0.1 mg/m3 Notes: C, M, 3 Source: AFS 2021:3
	SUVA SWITZERLAND D	Long Term: 0.15 mg/m3 Notes: TWA mg/m3: (a), C1A, SSC, P, Cancpulm Silicose / Lugenkrebs Silikose, HSE NIOSH OSHA Source: suva.ch/valeurs-limites
	ACGIH	Long Term: 2.5 mg/m3 (8h) Notes: Finescale particles; R ; A3 - LRT irr, pneumoconiosis
	NATION AUSTRIA AL	Long Term: 5 mg/m3; Short Term: 10 mg/m3 Notes: 60(Miw), 2x, MAK, A Source: BGBl. II Nr. 156/2021
	NATION BELGIUM AL	Long Term: 10 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION BULGARIA AL	Long Term: 10 mg/m3 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATION GERMANY AL	Long Term: 0.3 mg/m3; Short Term: 2.4 mg/m3 Notes: DFG; Long term and short term: excluding ultrafine particles; respirable fraction; multiplied by the material density; Source: TRGS900
	NATION DENMARK AL	Long Term: 6 mg/m3 Notes: K Source: BEK nr 2203 af 29/11/2021
	NATION SPAIN AL	Long Term: 10 mg/m3 Source: LEP 2022
	NATION ESTONIA AL	Long Term: 5 mg/m3 Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATION FRANCE AL	Long Term: 10 mg/m3 Notes: Cancérogène de catégorie 2 Source: INRS outil65
	NATION GREECE AL	Long Term: 10 mg/m3 Notes: εισπν. Source: ΦΕΚ 94/Α` 13.5.1999
		Long Term: 5 mg/m3 Notes: αναπν. Source: ΦΕΚ 94/Α` 13.5.1999
	NATION CROATIA AL	Long Term: 10 mg/m3 Notes: U Source: NN 1/2021
		Long Term: 4 mg/m3 Notes: R Source: NN 1/2021
	NATION IRELAND AL	Long Term: 10 mg/m3 Source: 2021 Code of Practice
		Long Term: 4 mg/m3 Source: 2021 Code of Practice
	NATION LITHUANIA AL	Long Term: 5 mg/m3 Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATION LATVIA AL	Long Term: 10 mg/m3 Source: KN325P1
	NATION NORWAY AL	Long Term: 5 mg/m3 Source: FOR-2021-06-28-2248
	NATION POLAND AL	Long Term: 10 mg/m3 Notes: 4), 7) Source: Dz.U. 2018 poz. 1286

NATION ROMANIA AL	Long Term: 10 mg/m ³ ; Short Term: 15 mg/m ³ Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATION SLOVAKIA AL	Long Term: 5 mg/m ³ Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATION SWEDEN AL	Long Term: 5 mg/m ³ Notes: 3 Source: AFS 2021:3
SUVA SWITZERLAND	Long Term: 3 mg/m ³ Notes: TWA mg/m ³ : (a), SSC, Formel / Formal, NIOSH Source: suva.ch/valeurs-limites

Propylidynetrimethanol

CAS: 77-99-6	NATION LITHUANIA AL	Short Term: Ceiling - 5 ppm Notes: Ū Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATION SWEDEN AL	Long Term: 5 mg/m ³ Source: AFS 2021:3

phosphoric acid

CAS: 7664-38-2	ACGIH	Long Term: 1 mg/m ³ (8h); Short Term: 3 mg/m ³ Notes: URT, eye and skin irr
	EU	Long Term: 1 mg/m ³ (8h); Short Term: 2 mg/m ³
	NATION AUSTRIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Notes: 15(Miw), 4x, MAK Source: BGBl. II Nr. 156/2021
	NATION BELGIUM AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION BULGARIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATION CYPRUS AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
	NATION CZECHIA AL	Long Term: 1 mg/m ³ ; Short Term: Ceiling - 2 mg/m ³ Source: Nařízení vlády č. 361-2007 Sb
	NATION GERMANY AL	Long Term: 2 mg/m ³ Notes: DFG, EU, AGS, Y, E, 2(I) Source: TRGS 900
	NATION DENMARK AL	Long Term: 1 mg/m ³ Notes: E Source: BEK nr 2203 af 29/11/2021
	NATION SPAIN AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Notes: VLI, s Source: LEP 2022
	NATION ESTONIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATION FINLAND AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: HTP-ARVOT 2020
	NATION FRANCE AL	Long Term: 1 mg/m ³ - 0.2 ppm; Short Term: 2 mg/m ³ - 0.5 ppm Source: INRS outil65, arrêté du 30-06-2004 modifié
	NATION GREECE AL	Long Term: 1 mg/m ³ ; Short Term: 3 mg/m ³ Source: ΦΕΚ 94/Α` 13.5.1999
	NATION CROATIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: 2000/39/EZ
	NATION HUNGARY AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Notes: m, EU1, N Source: 5/2020. (II. 6.) ITM rendelet
	NATION IRELAND AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Notes: IOELV Source: 2021 Code of Practice

NATION ITALY AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: D.lgs. 81/2008, Allegato XXXVIII
NATION LITHUANIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATION LUXEMBOUR AL G	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Mémorial A n.226 du 22 mars 2021
NATION LATVIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: KN325P1
NATION MALTA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: S.L.424.24
NATION NETHERLAND AL S	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Arbeidsomstandighedenregeling - Lijst A
NATION NORWAY AL	Long Term: 1 mg/m ³ Notes: E Source: FOR-2021-06-28-2248
NATION POLAND AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Dz.U. 2018 poz. 1286
NATION PORTUGAL AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: Decreto-Lei n.º 1/2021
NATION ROMANIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Notes: Dir. 2000/39 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATION SLOVAKIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATION SLOVENIA AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Notes: Y, EU1, (I) Source: UL št. 72, 11. 5. 2021
NATION SWEDEN AL	Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: AFS 2021:3
WEL- EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND Long Term: 1 mg/m ³ ; Short Term: 2 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
SUVA	SWITZERLAND D Long Term: 2 mg/m ³ ; Short Term: 4 mg/m ³ Notes: TWA mg/m ³ : (i), SSC, Poumons VRS Peau Yeux / Lunge OAW Haut Auge, NIOSH OSHA Source: suva.ch/valeurs-limites

methanol

CAS: 67-56-1

ACGIH	Long Term: 200 ppm (8h); Short Term: 250 ppm Notes: Skin, BEI - Headache, eye dam, dizziness, nausea
EU	Long Term: 260 mg/m ³ - 200 ppm (8h) Notes: Skin
NATION AUSTRIA AL	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1040 mg/m ³ - 800 ppm Notes: 15(Miw), 4x, MAK, H Source: BGBl. II Nr. 156/2021
NATION BELGIUM AL	Long Term: 266 mg/m ³ - 200 ppm; Short Term: 333 mg/m ³ - 250 ppm Notes: D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATION BULGARIA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: Кожа Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATION CYPRUS AL	Long Term: 260 mg/m ³ - 200 ppm Notes: δέρμα Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
NATION CZECHIA AL	Long Term: 250 mg/m ³ ; Short Term: Ceiling - 1000 mg/m ³ Notes: D, B

NATION GERMANY AL	Long Term: 130 mg/m ³ - 100 ppm Notes: DFG, EU, H, Y, 2(II) Source: TRGS 900
NATION DENMARK AL	Long Term: 260 mg/m ³ - 200 ppm Notes: EH Source: BEK nr 2203 af 29/11/2021
NATION SPAIN AL	Long Term: 266 mg/m ³ - 200 ppm Notes: vía dérmica, VLB®, VLI, r Source: LEP 2022
NATION ESTONIA AL	Long Term: 250 mg/m ³ - 200 ppm; Short Term: 350 mg/m ³ - 250 ppm Notes: A Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATION FINLAND AL	Long Term: 270 mg/m ³ - 200 ppm; Short Term: 330 mg/m ³ - 250 ppm Notes: iho Source: HTP-ARVOT 2020
NATION FRANCE AL	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1300 mg/m ³ - 1000 ppm Notes: Risque de pénétration percutanée Source: INRS outil65, article R. 4412-149 du Code du travail
NATION GREECE AL	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 325 mg/m ³ - 250 ppm Notes: Δ Source: ΦΕΚ 94/Α` 13.5.1999
NATION CROATIA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: koža Source: 2006/15/EZ
NATION HUNGARY AL	Long Term: 260 mg/m ³ Notes: b, i, BEM, EU2, R+T Source: 5/2020. (II. 6.) ITM rendelet
NATION IRELAND AL	Long Term: 260 mg/m ³ - 200 ppm Notes: Sk, IOELV Source: 2021 Code of Practice
NATION ITALY AL	Long Term: 260 mg/m ³ - 200 ppm Notes: Cute Source: D.lgs. 81/2008, Allegato XXXVIII
NATION LITHUANIA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATION LUXEMBOUR AL G	Long Term: 260 mg/m ³ - 200 ppm Notes: Peau Source: Mémorial A n.226 du 22 mars 2021
NATION LATVIA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: Āda Source: KN325P1
NATION MALTA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: skin Source: S.L.424.24
NATION NETHERLAND AL S	Long Term: 133 mg/m ³ Notes: H Source: Arbeidsomstandighedenregeling - Lijst A
NATION NORWAY AL	Long Term: 130 mg/m ³ - 100 ppm Notes: H E Source: FOR-2021-06-28-2248
NATION POLAND AL	Long Term: 100 mg/m ³ ; Short Term: 300 mg/m ³ Notes: skóra Source: Dz.U. 2018 poz. 1286
NATION PORTUGAL AL	Long Term: 260 mg/m ³ - 200 ppm Notes: Cutânea Source: Decreto-Lei n.º 1/2021
NATION ROMANIA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: P, Dir. 2006/15

NATION SLOVAKIA AL	Long Term: 260 mg/m ³ - 200 ppm Notes: K, 7) Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATION SLOVENIA AL	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1040 mg/m ³ - 800 ppm Notes: K, Y, BAT, EU2 Source: UL št. 72, 11. 5. 2021
NATION SWEDEN AL	Long Term: 250 mg/m ³ - 200 ppm; Short Term: 350 mg/m ³ - 250 ppm Notes: H, V Source: AFS 2021:3
WEL- EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND Long Term: 266 mg/m ³ - 200 ppm; Short Term: 333 mg/m ³ - 250 ppm Notes: Sk Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
SUVA	SWITZERLAND Long Term: 260 mg/m ³ - 200 ppm; Short Term: 520 mg/m ³ - 400 ppm Notes: R/H, SSC, B, SNC / ZNS, INRS NIOSH Source: suva.ch/valeurs-limites

Biological limit values

methanol

CAS: 67-56-1 Biological Indicator: Methyl alcohol; Sampling Period: End of turn; End of working week
Value: 30 mg/L; Medium: Urine

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: 600 ng/l
Exposure Route: Freshwater sediments; PNEC Limit: 0.996 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 0.099 mg/kg
Exposure Route: Soil; PNEC Limit: 0.196 mg/kg
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.018 mg/l

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane

Exposure Route: Fresh Water; PNEC Limit: 3 mg/m³
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 25.4 mg/m³
Exposure Route: Marine water; PNEC Limit: 300 ng/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 294 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 29.4 µg/kg
Exposure Route: Soil; PNEC Limit: 237 µg/kg

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

CAS: 68609-97-2 Exposure Route: Fresh Water; PNEC Limit: 0.007 mg/l
Exposure Route: Marine water; PNEC Limit: 0.072 mg/m³
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 66.77 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 6.677 mg/kg
Exposure Route: Soil; PNEC Limit: 80.12 mg/kg
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.072 mg/l

4-morpholinecarbaldehyde

CAS: 4394-85-8 Exposure Route: Fresh Water; PNEC Limit: 500 mg/m³
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 5 mg/l
Exposure Route: Marine water; PNEC Limit: 50 mg/m³
Exposure Route: Marine water; PNEC Limit: 2000 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 2.69 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 269 µg/kg

Exposure Route: Soil; PNEC Limit: 244 µg/kg

methanol

CAS: 67-56-1

Exposure Route: Fresh Water; PNEC Limit: 20.8 mg/l

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1540 mg/l

Exposure Route: Marine water; PNEC Limit: 2.08 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 100 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 77 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 7.7 mg/kg

Exposure Route: Soil; PNEC Limit: 100 mg/kg

Derived No Effect Level (DNEL) values

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

CAS: 1675-54-3

Exposure Route: Human Oral; Exposure Frequency: Long Term, local effects
Worker Professional: 0.75 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Worker Professional: 0.75 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.571 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, local effects
Worker Professional: 3.571 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 12.25 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 12.25 mg/kg/day

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane

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

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

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 Dermal; Exposure Frequency: Short Term, systemic effects
Worker Professional: 17 mg/kg; Consumer: 10 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 29 mg/kg/day; Consumer: 7.6 mg/kg/day

Exposure Route: Human Oral; Exposure Frequency: Short Term, systemic effects
Consumer: 1219 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Short Term, local effects
Worker Professional: 68 mg/kg; Consumer: 40 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 9.8 mg/kg/day; Consumer: 2.9 mg/kg/day

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.9 mg/kg; Consumer: 2.35 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 13.8 mg/kg/day; Consumer: 4.1 mg/kg/day

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 1 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, local effects
Worker Professional: 1.7 mg/kg; Consumer: 1 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 0.98 mg/kg; Consumer: 1.46 mg/kg

4-morpholinecarbaldehyde

CAS: 4394-85-8 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 98 mg/kg/day; Consumer: 29 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 1.7 mg/kg/day; Consumer: 840 µg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 14 mg/kg; Consumer: 8 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, local effects
Worker Professional: 0.293 mg/cm²; Consumer: 176 mg/cm²

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 8 mg/kg

phosphoric acid

CAS: 7664-38-2 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 10.7 mg/kg/day; Consumer: 4.57 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 1 mg/kg/day; Consumer: 360 µg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 2 mg/kg/day

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 100 µg/kg

methanol

CAS: 67-56-1 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 130 mg/kg/day; Consumer: 26 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 130 mg/kg/day; Consumer: 26 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 130 mg/kg/day; Consumer: 26 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 130 mg/kg/day; Consumer: 26 mg/kg/day

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 20 mg/kg; Consumer: 4 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Short Term, systemic effects
Worker Professional: 20 mg/kg; Consumer: 4 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 4 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Short Term, systemic effects
Consumer: 4 mg/kg

8.2. Exposure controls

Eye protection:

Eye glasses with side protection.(EN166)

Protection for skin:

Chemical protection clothing. Safety shoes.

Protection for hands:

Suitable materials for safety gloves (EN 374, EN 16523-1:2015+A1:2018: Level 6):

Nitrile rubber - NBR: thickness ≥0,4mm; breakthrough time ≥480min.

Butyl rubber - IIR: thickness ≥0,4mm; breakthrough time ≥480min.

Respiratory protection:

Respiratory protective equipment should be worn when there is a possibility that the exposure limit value will be exceeded. In the absence of exposure limit values, respiratory protective equipment should be worn when adverse effects occur, such as respiratory irritation or discomfort, or if indicated by the results of your risk assessment. Use the following CE-approved air-purifying respirator: A-type organic vapour cartridge (boiling point >65°C)

Thermal Hazards:

Not expected if used as intended

Environmental exposure controls:

Prevent the product from entering sewers or surface and underground water.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	In compliance with the product description
Odour:	Characteristic
Odour threshold:	Not Relevant Notes: Data not available
pH:	N.A.
Kinematic viscosity:	N.A.
Melting point/freezing point:	N.A.
Boiling point or initial boiling point and boiling range:	N.A.
Flash point:	Not Applicable
Lower and upper explosion limit:	Not Relevant Notes: Not applicable as the mixture is not flammable
Relative vapour density:	N.A.
Vapour pressure:	N.A.
Density and/or relative density:	1.50 g/cm ³ Method: ISO 2811
Solubility in water:	N.A.
Solubility in oil:	Not Relevant Notes: Not determined, as it is not required for CLP classification
Partition coefficient n-octanol/water (log value):	Not Relevant Notes: Not applicable to mixtures
Auto-ignition temperature:	Not Relevant Notes: Not applicable as the mixture is not flammable
Decomposition temperature:	Not Relevant Notes: Not applicable, as the mixture is not self-reactive
Flammability:	N.A.
Volatile Organic compounds - VOCs =	0.00%; 0.01g/L
Particle characteristics:	
Particle size:	N.A.

9.2. Other information

Explosive properties:	Not Relevant Notes: Not applicable, the mixture contains no explosive groups
No other relevant information	

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

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

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. 1B(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 Rabbit = 19800 mg/kg LD50 Skin Rabbit > 20 mg/kg 24h
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes
	d) respiratory or skin sensitisation	Skin Sensitization Positive
	f) carcinogenicity	Genotoxicity Negative Carcinogenicity Oral Rat = 15 mg/kg Carcinogenicity Skin Rat = 1 mg/kg
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 750 mg/kg

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-{[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane

a) acute toxicity	LD50 Oral Rat > 5000 mg/kg LD50 Skin Rat > 2000 mg/kg 24h
b) skin corrosion/irritation	Skin Irritant Rabbit Positive 4h
c) serious eye damage/irritation	Eye Irritant Rabbit No
d) respiratory or skin sensitisation	Skin Sensitization Positive
f) carcinogenicity	Genotoxicity Negative
g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 750 mg/kg

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

CAS: 68609-97-2	a) acute toxicity	LD50 Oral Rat = 26800 mg/kg LC50 Inhalation Rat > 0.206 mg/l 4h LD50 Skin Rabbit > 4.5 ml/Kg 24h
	b) skin corrosion/irritation	Skin Irritant Rabbit Yes
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes
	d) respiratory or skin	Skin Sensitization Guinea pig Positive

sensitisation

g) reproductive toxicity No Observed Adverse Effect Level Skin Rat = 200 mg/kg

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

CAS: 933999-84-9 a) acute toxicity LD50 Oral Rat = 3010 mg/kg

Quartz

CAS: 14808-60-7 Generic information: Informazione tossicologia a livello di sostanza

a) acute toxicity LD50 Oral > 2000 mg/kg

4-morpholinecarbaldehyde

CAS: 4394-85-8 a) acute toxicity LD50 Oral Rat > 7360 mg/kg
LC50 Inhalation of aerosol Rat > 5.3 mg/l 4h
LD50 Skin Rabbit > 18400 mg/kg 24h

b) skin corrosion/irritation Skin Irritant Rabbit Negative

c) serious eye damage/irritation Eye Irritant Rabbit No

d) respiratory or skin sensitisation Skin Sensitization Positive

g) reproductive toxicity No Observed Adverse Effect Level Oral Rat = 1000 mg/kg

phosphoric acid

CAS: 7664-38-2 a) acute toxicity LD50 Oral Rat = 2600 mg/kg
LC50 Inhalation Rat = 3846 mg/m3 1h

b) skin corrosion/irritation Skin Corrosive Rabbit Positive

c) serious eye damage/irritation Eye Irritant Rabbit Yes

g) reproductive toxicity No Observed Adverse Effect Level Oral Rat >= 500 mg/kg

methanol

CAS: 67-56-1 a) acute toxicity LD50 Oral Rat >= 2528 mg/kg
LC50 Inhalation = 43.68 mg/l 6h
LD50 Skin Rabbit = 17100 mg/kg

b) skin corrosion/irritation Skin Irritant Rabbit Negative

c) serious eye damage/irritation Eye Irritant Rabbit No

d) respiratory or skin sensitisation Skin Sensitization Guinea pig Negative

f) carcinogenicity Genotoxicity Negative
Carcinogenicity Rat Negative

g) reproductive toxicity Lowest Observed Adverse Effect Level Oral = 1000 mg/kg

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

12.1. Toxicity

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

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: LC50 Fish Oncorhynchus mykiss = 2 mg/L 96h

a) Aquatic acute toxicity: LC50 Daphnia magna = 1.8 mg/L 48h

a) Aquatic acute toxicity: EC50 Algae Scenedesmus capricornutum = 11 mg/L 72h

c) Bacteria toxicity: EC50 Sludge activated sludge = 100 mg/L 3h

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane

a) Aquatic acute toxicity: LC50 Fish *Leuciscus idus* = 2.54 mg/L 96h

a) Aquatic acute toxicity: LC50 *Daphnia magna* = 2.55 mg/L 48h

b) Aquatic chronic toxicity: NOEC *Daphnia magna* = 0.3 mg/L

a) Aquatic acute toxicity: EC50 Algae *Selenastrum capricornutum* = 1.8 mg/L 72h

a) Aquatic acute toxicity: NOEC Sludge activated sludge = 100 mg/L 3h

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

CAS: 68609-97-2 a) Aquatic acute toxicity: LC50 Fish *Oncorhynchus mykiss* > 5000 mg/L 96h

a) Aquatic acute toxicity: NOEC Algae *Pseudokirchneriella subcapitata* = 500 mg/L 72h

a) Aquatic acute toxicity: EC50 Algae *Pseudokirchneriella subcapitata* = 843 mg/L 72h

c) Bacteria toxicity: EC50 Sludge > 100 mg/L

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

CAS: 933999-84-9 a) Aquatic acute toxicity: LC50 Fish rainbow trout = 30 mg/L 96h

a) Aquatic acute toxicity: LC50 *Daphnia magna* = 47 mg/L 48h

a) Aquatic acute toxicity: EC50 Algae = 23.1 mg/L 72h

4-morpholinecarbaldehyde

CAS: 4394-85-8 a) Aquatic acute toxicity: LC50 Fish *Leuciscus idus* > 500 mg/L 96h

a) Aquatic acute toxicity: EC50 *Daphnia magna* > 500 mg/L 48h

a) Aquatic acute toxicity: EC50 Algae German Industrial Standard guideline DIN 38412, part 9 = 23.8 g/L 72h

c) Bacteria toxicity: EC10 *Pseudomonas putida* > 2000 mg/L

phosphoric acid

CAS: 7664-38-2 a) Aquatic acute toxicity: LC50 *Daphnia magna* > 100 mg/L 48h

a) Aquatic acute toxicity: EC50 Algae *Desmodesmus subspicatus* > 100 mg/L 72h

a) Aquatic acute toxicity: EC50 Sludge activated sludge > 1000 mg/L 3h

methanol

CAS: 67-56-1 a) Aquatic acute toxicity: LC50 Fish *Lepomis macrochirus* = 15400 mg/L 96h

b) Aquatic chronic toxicity: NOEC Fish = 450 mg/L

a) Aquatic acute toxicity: EC50 *Daphnia magna* = 22200 mg/L 48h

b) Aquatic chronic toxicity: NOEC *Daphnia magna* = 208 mg/L

a) Aquatic acute toxicity: EC50 Algae *Selenastrum capricornutum* = 22000 mg/L 96h

d) Terrestrial toxicity: NOEC Worm *Eisenia andrei* = 10000 mg/kg

d) Terrestrial toxicity: NOEC *Folsomia candida* = 1000 mg/kg

12.2. Persistence and degradability

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

CAS: 1675-54-3 Non-readily biodegradable

Test: Oxygen consumption

Notes: OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane

Non-readily biodegradable

Value: 16

Notes: 28days

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

CAS: 68609-97-2 Readily biodegradable

Test: Oxygen consumption; Value: 87

Notes: %; OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

CAS: 933999-84-9 Non-readily biodegradable

4-morpholinecarbaldehyde

CAS: 4394-85-8 Readily biodegradable

Test: Dissolved organic carbon; Value: 96

Notes: %; OECD 301 A

methanol

CAS: 67-56-1 Readily biodegradable

12.3. Bioaccumulative potential

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

CAS: 1675-54-3 Bioaccumulative Test: BCF - Bioconcentration factor; Value: 31

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane

Bioaccumulative Test: BCF - Bioconcentration factor; Value: 150

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

CAS: 68609-97-2 Bioaccumulative Test: BCF - Bioconcentration factor; Value: 160

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

CAS: 933999-84-9 Bioaccumulative Test: BCF - Bioconcentration factor; Value: 3.57

4-morpholinecarbaldehyde

CAS: 4394-85-8 Bioaccumulative Test: BCF - Bioconcentration factor; Value: 1.9

methanol

CAS: 67-56-1 Not bioaccumulative Test: BCF - Bioconcentration factor
Notes: < 10

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.

The product disposed of as such, pursuant to Regulation (EU) 1357/2014, must be classified as hazardous waste

A waste code according to the European List of Wastes (LoW) cannot be specified, due to dependence on the usage. Contact an authorized waste disposal service.

Properties of waste which render it hazardous (Annex III, Directive 2008/98/EC):

The liquid mixture, due to hardening or exposure to heat, loses its original technical characteristics and appears in a solid state upon disposal; in this case, employees must comply with the requirements of national legislation about safety in the workplace.

In particular, employees must take appropriate technical measures when handling the product, such as proceed with local ventilation and use airtight containers to limit dust dispersion; they must as well wear a respirator with P3 filter.

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-Label: N/A
ADR - Hazard identification number: N/A
ADR-Special Provisions: N/A
ADR-Transport category (Tunnel restriction code): N/A
ADR Limited Quantities: N/A
ADR Excepted Quantities: N/A

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)

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

Regulation (EU) n. 2020/878

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

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

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. 2023/707

Regulation (EU) n. 2023/1434 (ATP 19 CLP)

Regulation (EU) n. 2023/1435 (ATP 20 CLP)

Regulation (EU) n. 2024/197 (ATP 21 CLP)

Regulation (EU) n. 2024/2564 (ATP 22 CLP)

Regulation (EU) n. 2024/2865

Regulation (EU) n. 2025/1222 (ATP 23 CLP)

Regulation (EC) nr 648/2004 (Detergents).

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: 3

Restrictions related to the substances contained: 40, 69, 75

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

None

Explosives precursors – Regulation 2019/1148

No substances listed

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

No substances listed

German Water Hazard Class.

Class 3: extremely hazardous.

German Lagerklasse according to TRGS 510:

LGK 6.1C

SVHC Substances:

No SVHC substances present in concentration $\geq 0.1\%$

15.2. Chemical safety assessment

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

Substances for which a Chemical Safety Assessment has been carried out:

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

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

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

SECTION 16: Other information

Code	Description
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H360	May damage fertility or the unborn child.
H360F	May damage fertility.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
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
2.6/2	Flam. Liq. 2	Flammable liquid, Category 2
3.1/3/Dermal	Acute Tox. 3	Acute toxicity (dermal), Category 3
3.1/3/Inhal	Acute Tox. 3	Acute toxicity (inhalation), Category 3
3.1/3/Oral	Acute Tox. 3	Acute toxicity (oral), Category 3
3.2/1B	Skin Corr. 1B	Skin corrosion, Category 1B
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
3.4.2/1B	Skin Sens. 1B	Skin Sensitisation, Category 1B
3.7/1B	Repr. 1B	Reproductive toxicity, Category 1B
3.8/1	STOT SE 1	Specific target organ toxicity — single exposure, Category 1
3.8/2	STOT SE 2	Specific target organ toxicity — single exposure, Category 2
3.9/1	STOT RE 1	Specific target organ toxicity — repeated exposure, 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
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1B, H317	Calculation method
Repr. 1B, H360	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

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.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

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

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

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.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care

KAFH: Keep Away From Heat

KSt: Explosion coefficient.

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

NA: 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.

TWATLV: 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:

- Safety Data Sheet
- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 15: Regulatory information
- SECTION 16: Other information

Exposure Scenario

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

Exposure Scenario, 07/06/2021

Substance identity	
	bis-[4-(2,3-epoxipropoxy)phenyl]propane
CAS No.	1675-54-3
INDEX No.	603-073-00-2
EINECS No.	216-823-5
Registration number	01-2119456619-26

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1. **ES 1** Widespread use by professional workers; ESC2_0000001

1. ES 1 Widespread use by professional workers; ESC2_0000001	
1.1 TITLE SECTION	
Exposure Scenario name	Professional application of coatings and inks - Etching agent - Resins (prepolymers) - Adhesion promotor
Date - Version	27/05/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	ESC2_0000001
Article Category(ies)	Other articles made of stone, plaster, cement, glass or ceramic (AC4g)
Environment Contributing Scenario	
CS1	ERC8c - ERC8f
Worker Contributing Scenario	
CS2 Material transfers	PROC8a
CS3 Rolling, Brushing	PROC10
CS4 Roller, spreader, flow application	PROC11
CS5 Mixing operations - Manual	PROC19
1.2 Conditions of use affecting exposure	
1.2. CS1: Environment Contributing Scenario (ERC8c, ERC8f)	
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use (or from service life)</i>	
Amounts used: Daily amount per site = 175 kg/day	
Release type: Continuous release	
Emission days: 365 days per year	
<i>Technical and organisational conditions and measures</i>	
Control measures to prevent releases Provide onsite wastewater removal efficiency of ³ (%):	
<i>Conditions and measures related to sewage treatment plant</i>	
STP type: Municipal Sewage Treatment Plant	
STP effluent (m³/day): 2	
<i>Conditions and measures related to treatment of waste (including article waste)</i>	
Waste treatment Dispose of waste cans and containers according to local regulations.	
<i>Other conditions affecting environmental exposure</i>	

Local marine water dilution factor: 100
Local freshwater dilution factor: 10
Receiving surface water flow: 18000 m³/day
Covers indoor and outdoor use

1.2. CS2: Worker Contributing Scenario: Material transfers (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
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Product (article) characteristics

Physical form of product:

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Technical and organisational measures

Avoid carrying out activities involving exposure for more than 4 hours per day.

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

Personal protection

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

Other conditions affecting worker exposure

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.2. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Process Categories	Roller application or brushing (PROC10)
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Product (article) characteristics

Physical form of product:

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Technical and organisational measures

Avoid carrying out activities involving exposure for more than 4 hours per day.

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

Personal protection

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

Other conditions affecting worker exposure

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.2. CS4: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Process Categories	Non industrial spraying (PROC11)
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Product (article) characteristics

Physical form of product:

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure**Duration:**

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures**Technical and organisational measures**

Avoid carrying out activities involving exposure for more than 4 hours per day.

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

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

Wear suitable face shield.

Wear an impervious suit.

Wear a respirator conforming to EN140.

Other conditions affecting worker exposure

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.2. CS5: Worker Contributing Scenario: Mixing operations - Manual (PROC19)**Process Categories**

Manual activities involving hand contact (PROC19)

Product (article) characteristics**Physical form of product:**

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure**Duration:**

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures**Technical and organisational measures**

Avoid carrying out activities involving exposure for more than 1 hour per day.

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

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

Other conditions affecting worker exposure

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.3 Exposure estimation and reference to its source**1.3. CS1: Environment Contributing Scenario (ERC8c, ERC8f)**

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	= 0.0022 mg/L	EUSES	= 0.00022
marine sediment	= 0.00127 mg/L	EUSES	= 0.0128
freshwater sediment	= 0.012 mg/L	EUSES	= 0.0369
marine water	= 2.34E-05 mg/L	EUSES	= 0.029
soil	= 0.00142 mg/kg dry weight	EUSES	= 0.00722

1.3. CS2: Worker Contributing Scenario: Material transfers (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	= 0.84 mg/m ³	ECETOC TRA worker v2.0	0.07
dermal, systemic, long-term	= 0.2742 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.03

1.3. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	= 5E-07 mg/m ³	ECETOC TRA worker v2.0	< 0.001
dermal, systemic, long-term	= 2.743 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.33

1.3. CS4: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	= 0.36 mg/m ³	ECETOC TRA worker v2.0	0.03
dermal, systemic, long-term	= 2.68 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.32

1.3. CS5: Worker Contributing Scenario: Mixing operations - Manual (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	= 2E-07 mg/m ³	ECETOC TRA worker v2.0	< 0.001
dermal, systemic, long-term	= 1.414 mg/kg bw/day	ECETOC TRA worker v3	< 0.42
combined routes, systemic, long-term	N/A	ECETOC TRA worker v3	= 0.42

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.

Exposure Scenario

oxirane, mono[(c12-14-alkyloxy)methyl] derivs.

Exposure Scenario, 03/01/2025

Substance identity	
	oxirane, mono[(c12-14-alkyloxy)methyl] derivs.
CAS No.	68609-97-2
INDEX No.	603-103-00-4
EINECS No.	271-846-8
Registration number	01-2119485289-22

Table of contents

1. **ES 1** Widespread use by professional workers; Various products (PC1, PC9a, PC9b)

1. ES 1		Widespread use by professional workers; Various products (PC1, PC9a, PC9b)	
1.1 TITLE SECTION			
Exposure Scenario name		Professional application of coatings and inks by brush or roller - Professional application of coatings and inks	
Date - Version		03/01/2025 - 1.0	
Life Cycle Stage		Widespread use by professional workers	
Main user group		Professional uses	
Sector(s) of use		Professional uses (SU22)	
Product Categories		Adhesives, sealants (PC1) - Coatings and paints, thinners, paint removers (PC9a) - Fillers, putties, plasters, modelling clay (PC9b)	
Environment Contributing Scenario			
CS1		ERC8c	
Worker Contributing Scenario			
CS2 Mixing operations		PROC5	
CS3 Large surfaces - Surfaces - Rolling, Brushing		PROC10	
CS4 Large surfaces - Surfaces - Roller, spreader, flow application		PROC11	
CS5 Large surfaces - Surfaces - Rolling, Brushing		PROC19	
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c)			
Environmental release categories		Widespread use leading to inclusion into/onto article (indoor) (ERC8c)	
Product (article) characteristics			
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP			
Amount used, frequency and duration of use (or from service life)			
Release type: Intermittent release			
1.2. CS2: Worker Contributing Scenario: Mixing operations (PROC5)			
Process Categories		Mixing or blending in batch processes (PROC5)	
Product (article) characteristics			
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP			
Concentration of substance in product: Covers percentage substance in the product up to 25 %.			
Amount used, frequency and duration of use/exposure			
Duration: Covers daily exposures up to 8 hours			
Technical and organisational conditions and measures			
Technical and organisational measures Ensure operatives are trained to minimise exposures. Avoid direct eye contact with product, also via contamination on hands.			
Conditions and measures related to personal protection, hygiene and health evaluation			
Personal protection Wear suitable gloves tested to EN374.			

Other conditions affecting worker exposure	
Indoor use Professional use Temperature: Covers use at ambient temperatures. Body parts exposed: Assumes that potential dermal contact is limited to hands and forearms.	
1.2. CS3: Worker Contributing Scenario: Large surfaces - Surfaces - Rolling, Brushing (PROC10)	
Process Categories	Roller application or brushing (PROC10)
Product (article) characteristics	
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 25 %.	
Amount used, frequency and duration of use/exposure	
Duration: Covers daily exposures up to 8 hours	
Technical and organisational conditions and measures	
Technical and organisational measures Ensure operatives are trained to minimise exposures. Provide extract ventilation to points where emissions occur. Avoid direct eye contact with product, also via contamination on hands. Use long handled brushes and rollers.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140.	
Other conditions affecting worker exposure	
Indoor use Professional use Temperature: Covers use at ambient temperatures.	
1.2. CS4: Worker Contributing Scenario: Large surfaces - Surfaces - Roller, spreader, flow application (PROC11)	
Process Categories	Non industrial spraying (PROC11)
Product (article) characteristics	
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
Amount used, frequency and duration of use/exposure	
Duration: Covers daily exposures up to 8 hours	
Frequency: For each use, avoid using for more than < 4 h/event	
Technical and organisational conditions and measures	
Technical and organisational measures Ensure operatives are trained to minimise exposures. Provide extract ventilation to points where emissions occur. Avoid direct eye contact with product, also via contamination on hands. Use long handled brushes and rollers. 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.	
Conditions and measures related to personal protection, hygiene and health evaluation	

Personal protection Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140.															
<i>Other conditions affecting worker exposure</i>															
Indoor use Professional use Temperature: Covers use at ambient temperatures.															
1.2. CS5: Worker Contributing Scenario: Large surfaces - Surfaces - Rolling, Brushing (PROC19)															
Process Categories		Manual activities involving hand contact (PROC19)													
<i>Product (article) characteristics</i>															
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP															
Concentration of substance in product: Covers percentage substance in the product up to 25 %.															
<i>Amount used, frequency and duration of use/exposure</i>															
Duration: Covers daily exposures up to 8 hours															
Frequency: For each use, avoid using for more than < 1 h/event															
<i>Technical and organisational conditions and measures</i>															
Technical and organisational measures Ensure operatives are trained to minimise exposures. Provide extract ventilation to points where emissions occur. Avoid direct eye contact with product, also via contamination on hands. Use long handled brushes and rollers.															
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>															
Personal protection Wear suitable gloves tested to EN374.															
<i>Other conditions affecting worker exposure</i>															
Indoor use Professional use Temperature: Covers use at ambient temperatures.															
1.3 Exposure estimation and reference to its source															
1.3. CS2: Worker Contributing Scenario: Mixing operations (PROC5)															
<table border="1"> <thead> <tr> <th>Exposure route, Health effect, Exposure indicator</th> <th>Exposure level</th> <th>Calculation method</th> <th>Risk Characterization Ratio (RCR)</th> </tr> </thead> <tbody> <tr> <td>inhalative, systemic, long-term</td> <td>= 9.3 mg/m³</td> <td>ECETOC TRA worker v2.0</td> <td>= 0.674</td> </tr> <tr> <td>dermal, systemic, long-term</td> <td>= 0.007 mg/kg bw/day</td> <td>ECETOC TRA worker v2.0</td> <td>= 0.002</td> </tr> </tbody> </table>				Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)	inhalative, systemic, long-term	= 9.3 mg/m ³	ECETOC TRA worker v2.0	= 0.674	dermal, systemic, long-term	= 0.007 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.002
Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)												
inhalative, systemic, long-term	= 9.3 mg/m ³	ECETOC TRA worker v2.0	= 0.674												
dermal, systemic, long-term	= 0.007 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.002												
Additional information on exposure estimation: If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374.															
1.3. CS3: Worker Contributing Scenario: Large surfaces - Surfaces - Rolling, Brushing (PROC10)															
<table border="1"> <thead> <tr> <th>Exposure route, Health effect, Exposure indicator</th> <th>Exposure level</th> <th>Calculation method</th> <th>Risk Characterization Ratio (RCR)</th> </tr> </thead> <tbody> </tbody> </table>				Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)								
Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)												

inhalative, local, short-term	= 2.325 mg/m ³	ECETOC TRA worker v2.0	= 0.168
dermal, systemic, long-term	= 0.137 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.035

Additional information on exposure estimation:

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374.

1.3. CS4: Worker Contributing Scenario: Large surfaces - Surfaces - Roller, spreader, flow application (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, local, short-term	= 0.36 mg/m ³	ECETOC TRA worker v2.0	= 0.03
dermal, systemic, long-term	= 2.68 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.32

Additional information on exposure estimation:

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374.

1.3. CS5: Worker Contributing Scenario: Large surfaces - Surfaces - Rolling, Brushing (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, local, long-term	= 2E-07 mg/m ³	ECETOC TRA worker v2.0	< 0.001
dermal, systemic, long-term	= 1.414 mg/kg bw/day	ECETOC TRA worker v2.0	= 0.42

Additional information on exposure estimation:

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374.

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.

Exposure Scenario

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

Exposure Scenario, 23/07/2021

Substance identity	
	Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)
CAS No.	933999-84-9
EINECS No.	618-939-5
Registration number	01-2119463471-41

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1. **ES 1** Widespread use by professional workers; Various products (PC1, PC9a); Building and construction work (SU19)

1. ES 1		Widespread use by professional workers; Various products (PC1, PC9a); Building and construction work (SU19)	
1.1 TITLE SECTION			
Exposure Scenario name	Professional application of coatings and inks		
Date - Version	23/07/2021 - 1.0		
Life Cycle Stage	Widespread use by professional workers		
Main user group	Professional uses		
Sector(s) of use	Professional uses (SU22) - Building and construction work (SU19)		
Product Categories	Adhesives, sealants (PC1) - Coatings and paints, thinners, paint removers (PC9a)		
Environment Contributing Scenario			
CS1	ERC8c - ERC8f		
Worker Contributing Scenario			
CS2 Mixing operations - Rolling, Brushing - Roller, spreader, flow application - Material transfers	PROC8a - PROC10 - PROC11 - PROC19		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c, ERC8f)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Concentration of substance in product: Covers concentrations up to 10 %			
<i>Conditions and measures related to treatment of waste (including article waste)</i>			
Waste treatment Dispose of this material and its container at hazardous or special waste collection point. Hazardous waste incineration			
<i>Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.</i>			
Additional Good Practice Advice: Prevent leaks and prevent soil / water pollution caused by leaks.			
1.2. CS2: Worker Contributing Scenario: Mixing operations - Rolling, Brushing - Roller, spreader, flow application - Material transfers (PROC8a, PROC10, PROC11, PROC19)			
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Roller application or brushing - Non industrial spraying - Manual activities involving hand contact (PROC8a, PROC10, PROC11, PROC19)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Concentration of substance in product: Covers concentrations up to 10 %			
<i>Amount used, frequency and duration of use/exposure</i>			
Duration: Covers daily exposures up to 8 hours			
Frequency: Use frequency 5 days per week			
<i>Technical and organisational conditions and measures</i>			

Technical and organisational measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).
For further specification, refer to section 8 of the SDS.

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

Personal protection

Wear suitable gloves tested to EN374.
Use suitable eye protection.
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable respiratory protection.
For further specification, refer to section 8 of the SDS.

1.3 Exposure estimation and reference to its source

N/A

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.

Safety Data Sheet

Conforms to Regulation (EC) No. 1907/2006 (REACH), Article 31, Annex II, as amended by Commission Regulation (EU) 2020/878

FACTORY COLORFLOW EP (B)

Date of first edition: 4/2/2021

Safety Data Sheet dated 14/09/2026 version 5

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

1.1. Product identifier

Mixture identification:

Trade name: FACTORY COLORFLOW EP (B)

Trade code: S100B0316 30

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

Recommended use: hardener

Uses advised against: All uses other than recommended ones

1.3. Details of the supplier of the safety data sheet

Company: KERAKOLL S.p.A.

Via dell'Artigianato, 9

41049 Sassuolo (MODENA) - ITALY

Tel. +39 0536 816511 Fax. +39 0536816581

safety@kerakoll.com

1.4. Emergency telephone number

European emergency phone number 112

Ireland Emergency medical information: (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.

Members of the public Number (8 am-10 pm): +353 (0)1 809 2166

Healthcare professional telephone Number (24hrs): +353 (0)1 809 2566

Malta In case of emergency call: +356 2395 2000 (24h)

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

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

Acute Tox. 4	Harmful if swallowed.
Skin Corr. 1A	Causes severe skin burns and eye damage.
Eye Dam. 1	Causes serious eye damage.
Skin Sens. 1B	May cause an allergic skin reaction.
Aquatic Acute 1	Very toxic to aquatic life.
Aquatic Chronic 1	Very 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

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe vapours.
P273	Avoid release to the environment.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501	Dispose of contents/container in accordance with applicable regulations.

Contains

2,2'-iminodiethylamine; diethylenetriamine

1,3-Cyclohexanedimethanamine

1,2-Ethanediamine, N-(2-aminoethyl)-,
reaction products with glycidyl tolyl ether

Polyoxpropylenediamine

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

None.

2.3. Other hazards

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

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FACTORY COLORFLOW EP (B)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
≥ 50 -<70 %	1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether	CAS:84144-79-6 EC:282-199-6	Acute Tox. 4, H302; Skin Corr. 1C, H314; Eye Dam. 1, H318; Skin Sens. 1, H317; Aquatic Acute 1, H400; Aquatic Chronic 1, H410, M-Chronic:1, M-Acute:1	01-2120762088-49
≥ 10 -<20 %	Polyoxpropylenediamine	CAS:9046-10-0 EC:618-561-0	Skin Corr. 1C, H314; Eye Dam. 1, H318; Aquatic Chronic 3, H412	01-2119557899-12
≥ 10 -<20 %	1,3-Cyclohexanedimethanamine	CAS:2579-20-6 EC:219-941-5	Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Corr. 1A, H314; Eye Dam. 1, H318; Aquatic Chronic 3, H412	01-2119543741-41
≥ 3 -<5 %	Alcohols, C10-16	CAS:67762-41-8 EC:267-019-6	Aquatic Acute 1, H400, M-Acute:1	
≥ 1 -<3 %	p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)	CAS:6192-52-5 EC:203-180-0 Index:016-030-00-2	Eye Irrit. 2, H319; STOT SE 3, H335; Skin Irrit. 2, H315 Specific Concentration Limits: C $\geq 20\%$: STOT SE 3 H335	01-2119538811-39
≥ 1 -<3 %	2,2'-iminodiethylamine; diethylenetriamine	CAS:111-40-0 EC:203-865-4 Index:612-058-00-X	Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 2, H330; Skin Corr. 1B, H314; Eye Dam. 1, H318; STOT SE 3, H335; Skin Sens. 1B, H317 Acute Toxicity Estimate: ATE - Oral: 1.553 mg/kg bw ATE - Dermal: 1.045 mg/kg bw ATE - Inhalation (Dust/mist): 0.07 mg/l	01-2119473793-27
≥ 0.3 -<0.5 %	2,6-di-tert-butyl-p-cresol	CAS:128-37-0 EC:204-881-4	Aquatic Chronic 1, H410; Aquatic Acute 1, H400, M-Acute:1, M-Chronic:1	01-2119555270-46/01-2119565113-46

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

- Immediately take off all contaminated clothing.
- OBTAIN IMMEDIATE MEDICAL ATTENTION.
- Remove contaminated clothing immediately and dispose off safely.
- After contact with skin, wash immediately with soap and plenty of water.

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:

- Give nothing to eat or drink.

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

Eye irritation

Eye damages

Skin Irritation

Erythema

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:

- Water.
- Carbon dioxide (CO₂).

Extinguishing media which must not be used for safety reasons:

- None in particular.

5.2. Special hazards arising from the substance or mixture

- Do not inhale explosion and combustion gases.
- Burning produces heavy smoke.

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.
- Retain contaminated washing water and dispose it.
- In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
- Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

- Suitable material for taking up: absorbing material, organic, sand
- Wash with plenty of water.

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.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

2,2',2''-nitrilotriethanol

CAS: 102-71-6	ACGIH	Long Term: 5 mg/m ³ (8h) Notes: Eye and skin irr
	NATION AUSTRIA AL	Long Term: 5 mg/m ³ - 0.8 ppm; Short Term: 10 mg/m ³ - 1.6 ppm Notes: 15(Miw), 4x, MAK, S, E Source: BGBl. II Nr. 156/2021
	NATION BELGIUM AL	Long Term: 5 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION CZECHIA AL	Long Term: 5 mg/m ³ ; Short Term: Ceiling - 10 mg/m ³ Notes: D, I Source: Nařízení vlády č. 361-2007 Sb
	NATION GERMANY AL	Long Term: 1 mg/m ³ Notes: DFG, Y, E, 1 (I) Source: TRGS 900
	NATION DENMARK AL	Long Term: 3.1 mg/m ³ - 0.5 ppm Source: BEK nr 2203 af 29/11/2021
	NATION SPAIN AL	Long Term: 5 mg/m ³ Source: LEP 2022
	NATION ESTONIA AL	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ Notes: S Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATION FINLAND AL	Long Term: 5 mg/m ³ Source: HTP-ARVOT 2020
	NATION IRELAND AL	Long Term: 5 mg/m ³ Source: 2021 Code of Practice
	NATION LITHUANIA AL	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ Notes: J Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATION NORWAY AL	Long Term: 5 mg/m ³ Source: FOR-2021-06-28-2248
	NATION SWEDEN AL	Long Term: 5 mg/m ³ - 0.8 ppm; Short Term: 10 mg/m ³ - 1.6 ppm Notes: H, V Source: AFS 2021:3
	SUVA SWITZERLAND D	Long Term: 5 mg/m ³ ; Short Term: 5 mg/m ³ Notes: TWA mg/m ³ : (i), SSC, VRS Peau Yeux / OAW Haut Auge, NIOSH Source: suva.ch/valeurs-limites

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0	ACGIH	Long Term: 1 ppm (8h) Notes: Skin - URT and eye irr
	NATION AUSTRIA AL	Long Term: 4 mg/m3 - 1 ppm Notes: MAK, Sh Source: GKV, BGBl. II Nr. 156/2021
	NATION BELGIUM AL	Long Term: 4.3 mg/m3 - 1 ppm Notes: D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION BULGARIA AL	Long Term: 4 mg/m3 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATION CZECHIA AL	Long Term: 4 mg/m3; Short Term: Ceiling - 8 mg/m3 Notes: I, S Source: Nařízení vlády č. 361-2007 Sb
	NATION DENMARK AL	Long Term: 4 mg/m3 - 1 ppm Notes: H Source: BEK nr 2203 af 29/11/2021
	NATION SPAIN AL	Long Term: 4.3 mg/m3 - 1 ppm Notes: vía dérmica, Sen Source: LEP 2022
	NATION ESTONIA AL	Long Term: 4.5 mg/m3 - 1 ppm; Short Term: 10 mg/m3 - 2 ppm Notes: A, S Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATION FINLAND AL	Long Term: 4.3 mg/m3 - 1 ppm; Short Term: 13 mg/m3 - 3 ppm Notes: iho Source: HTP-ARVOT 2020
	NATION FRANCE AL	Long Term: 4 mg/m3 - 1 ppm Notes: Risques d'allergie cutanée Source: INRS outil65
	NATION GREECE AL	Long Term: 4 mg/m3 - 1 ppm Notes: Δ Source: ΦΕΚ 94/A` 13.5.1999
	NATION CROATIA AL	Long Term: 4.3 mg/m3 - 1 ppm Notes: alergen koža Source: NN 1/2021
	NATION HUNGARY AL	Long Term: 4 mg/m3; Short Term: 8 mg/m3 Notes: b, m, sz, T Source: 5/2020. (II. 6.) ITM rendelet
	NATION IRELAND AL	Long Term: 4 mg/m3 - 1 ppm Notes: Sk Source: 2021 Code of Practice
	NATION LITHUANIA AL	Long Term: 4.5 mg/m3 - 1 ppm; Short Term: 10 mg/m3 - 2 ppm Notes: J O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATION NORWAY AL	Long Term: 4 mg/m3 - 1 ppm Notes: H A Source: FOR-2021-06-28-2248
	NATION POLAND AL	Long Term: 4 mg/m3; Short Term: 12 mg/m3 Notes: skóra Source: Dz.U. 2018 poz. 1286
	NATION ROMANIA AL	Long Term: 2 mg/m3 - 0.5 ppm; Short Term: 4 mg/m3 - 1 ppm Notes: P Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATION SWEDEN AL	Long Term: 4.5 mg/m3 - 1 ppm; Short Term: 10 mg/m3 - 2 ppm Notes: H, S, V Source: AFS 2021:3
WEL- EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4.3 mg/m3 - 1 ppm Notes: Sk Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)

2,6-di-tert-butyl-p-cresol CAS: 128-37-0	SUVA	SWITZERLAND	Long Term: 4 mg/m ³ - 1 ppm Notes: R/H, VRS Yeux / OAW Auge, NIOSH Source: suva.ch/valeurs-limites
	ACGIH		Long Term: 2 mg/m ³ (8h) Notes: IFV, A4 - URT irr
	NATION AL	AUSTRIA	Long Term: 10 mg/m ³ Notes: MAK Source: GKV, BGBl. II Nr. 156/2021
	NATION AL	BELGIUM	Long Term: 2 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION AL	BULGARIA	Long Term: 10 mg/m ³ ; Short Term: 50 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATION AL	GERMANY	Long Term: 10 mg/m ³ Notes: DFG, Y, 11, E, 4 (II) Source: TRGS 900
	NATION AL	DENMARK	Long Term: 10 mg/m ³ Source: BEK nr 2203 af 29/11/2021
	NATION AL	SPAIN	Long Term: 10 mg/m ³ Source: LEP 2022
	NATION AL	FINLAND	Long Term: 10 mg/m ³ ; Short Term: 20 mg/m ³ Source: HTP-ARVOT 2020
	NATION AL	FRANCE	Long Term: 10 mg/m ³ Source: INRS outil65
	NATION AL	GREECE	Long Term: 10 mg/m ³ Source: ΦΕΚ 94/Α` 13.5.1999
	NATION AL	CROATIA	Long Term: 10 mg/m ³ Source: NN 1/2021
	NATION AL	IRELAND	Long Term: 2 mg/m ³ Source: 2021 Code of Practice
	NATION AL	SLOVENIA	Long Term: 10 mg/m ³ ; Short Term: 40 mg/m ³ Notes: Y, (I) Source: UL št. 72, 11. 5. 2021
	WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
	SUVA	SWITZERLAND	Long Term: 10 mg/m ³ ; Short Term: 40 mg/m ³ Notes: TWA mg/m ³ : (i), C1#B, SSC, Foie / Leber, Pas de risque accru de cancer si la VME est respectée. La substance peut être présente sous forme de vapeur et d'aérosol en même temps / Kein erhöhtes Krebsrisiko bei Einhalten des MAK-Werts. Der Stoff kann gleichzeitig als Dampf und Aerosol vorliegen. Source: suva.ch/valeurs-limites
2,2'-iminodiethanol; diethanolamine CAS: 111-42-2	ACGIH		Long Term: 1 mg/m ³ (8h) Notes: IFV, Skin, A3 - Liver and kidney dam
	NATION AL	AUSTRIA	Long Term: 2 mg/m ³ - 0.46 ppm; Short Term: 4 mg/m ³ - 0.92 ppm Notes: 15(Miw), 4x, MAK, H, Sh, Reaktion mit nitrosierenden Agentien kann zur Bildung des kanzerogenen N-Nitrosodiethanolamins führen. Source: GKV, BGBl. II Nr. 156/2021
	NATION AL	BELGIUM	Long Term: 1 mg/m ³ - 0.2 ppm Notes: D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATION AL	BULGARIA	Long Term: 10 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.

NATION CZECHIA AL	Long Term: 5 mg/m ³ ; Short Term: Ceiling - 10 mg/m ³ Notes: I Source: Nařízení vlády č. 361-2007 Sb
NATION GERMANY AL	Long Term: 0.5 mg/m ³ - 0.11 ppm Notes: AGS, H, Sh, Y, 11, 6, 1 (I) Source: TRGS 900
NATION DENMARK AL	Long Term: 2 mg/m ³ - 0.46 ppm Notes: H Source: BEK nr 2203 af 29/11/2021
NATION SPAIN AL	Long Term: 1 mg/m ³ - 0.2 ppm Notes: vía dérmica, f, FIV Source: LEP 2022
NATION ESTONIA AL	Long Term: 5 mg/m ³ - 3 ppm; Short Term: 30 mg/m ³ - 6 ppm Notes: A Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATION FINLAND AL	Long Term: 2 mg/m ³ - 0.46 ppm Notes: iho Source: HTP-ARVOT 2020
NATION FRANCE AL	Long Term: 15 mg/m ³ - 3 ppm Source: INRS outil65
NATION GREECE AL	Long Term: 15 mg/m ³ - 3 ppm Source: ΦΕΚ 94/A` 13.5.1999
NATION CROATIA AL	Long Term: 15 mg/m ³ - 3 ppm Notes: koža Source: NN 1/2021
NATION IRELAND AL	Long Term: 1 mg/m ³ - 0.2 ppm Notes: OEL (8-hour reference period) mg/m ³ : IFV Source: 2021 Code of Practice
NATION LITHUANIA AL	Long Term: 15 mg/m ³ - 3 ppm; Short Term: 30 mg/m ³ - 6 ppm Notes: O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATION NORWAY AL	Long Term: 15 mg/m ³ - 3 ppm Source: FOR-2021-06-28-2248
NATION POLAND AL	Long Term: 9 mg/m ³ Notes: skóra Source: Dz.U. 2018 poz. 1286
NATION SLOVENIA AL	Long Term: 0.5 mg/m ³ - 0.11 ppm; Short Term: 0.5 mg/m ³ - 0.11 ppm Notes: K, Y Source: UL št. 72, 11. 5. 2021
NATION SWEDEN AL	Long Term: 15 mg/m ³ - 3 ppm; Short Term: 30 mg/m ³ - 6 ppm Notes: H, V Source: AFS 2021:3
SUVA SWITZERLAND D	Long Term: 1 mg/m ³ ; Short Term: 1 mg/m ³ Notes: TWA mg/m ³ : (i), R/H, S, SSC, Rein VRS Foie / Niere OAW Leber, En présence d'agents nitrosants, il peut se former de la N-Nitrosodiéthanamine cancérigène. La substance peut être présente sous forme de vapeur et d'aérosol en même temps. / Reaktion mit nitrosierenden Agentien kann zur Bildung des kanzerogenen N-Nitrosodiethanolamins führen. Der Stoff kann gleichzeitig als Aerosol und Dampf vorliegen. Source: suva.ch/valeurs-limites

Predicted No Effect Concentration (PNEC) values

1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether

CAS: 84144-79-6 Exposure Route: Fresh Water; PNEC Limit: 170 ng/l

Exposure Route: Marine water; PNEC Limit: 17 ng/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 660 mg/m³

Exposure Route: Freshwater sediments; PNEC Limit: 524 µg/kg

Exposure Route: Marine water sediments; PNEC Limit: 52.4 mg/kg

Exposure Route: Soil; PNEC Limit: 524 µg/kg

Polyoxpropylenediamine

CAS: 9046-10-0 Exposure Route: Fresh Water; PNEC Limit: 15 mg/m³

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 150 mg/m³
Exposure Route: Marine water; PNEC Limit: 14.2 mg/m³
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 7.5 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 132 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 125 µg/kg
Exposure Route: Soil; PNEC Limit: 17.6 µg/kg
Exposure Route: Secondary poisoning; PNEC Limit: 6.93 mg/kg

1,3-Cyclohexanedimethanamine

CAS: 2579-20-6 Exposure Route: Fresh Water; PNEC Limit: 33.1 mg/m³
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 331 mg/m³
Exposure Route: Marine water; PNEC Limit: 3.31 mg/m³
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l

p-toluenesulphonic acid (containing a maximum of 5 % H₂SO₄)

CAS: 6192-52-5 Exposure Route: Fresh Water; PNEC Limit: 73 mg/m³
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 730 mg/m³
Exposure Route: Marine water; PNEC Limit: 1.3 mg/m³
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 58 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 57.7 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 5.77 µg/kg
Exposure Route: Soil; PNEC Limit: 16 µg/kg

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0 Exposure Route: Fresh Water; PNEC Limit: 560 mg/m³
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 320 mg/m³
Exposure Route: Marine water; PNEC Limit: 56 mg/m³
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 6 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 1072 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 107.2 mg/kg
Exposure Route: Soil; PNEC Limit: 7.97 mg/kg

2,6-di-tert-butyl-p-cresol

CAS: 128-37-0 Exposure Route: Fresh Water; PNEC Limit: 199 ng/l
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1.99 mg/m³
Exposure Route: Marine water; PNEC Limit: 19.9 ng/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 170 mg/m³
Exposure Route: Freshwater sediments; PNEC Limit: 99.6 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 9.96 µg/kg
Exposure Route: Soil; PNEC Limit: 47.69 µg/kg
Exposure Route: Secondary poisoning; PNEC Limit: 8.33 mg/kg

Derived No Effect Level (DNEL) values

1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether

CAS: 84144-79-6 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 2.35 mg/kg/day

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 666 µg/kg

Polyoxpropylenediamine

CAS: 9046-10-0 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.36 mg/kg/day

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 2.5 mg/kg

1,3-Cyclohexanedimethanamine

CAS: 2579-20-6 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 9.47 µg/m³

p-toluenesulphonic acid (containing a maximum of 5 % H₂SO₄)

CAS: 6192-52-5 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 53.6 mg/kg/day; Consumer: 8.7 mg/kg/day

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 7.6 mg/kg; Consumer: 2.5 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 2.5 mg/kg

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 15.4 mg/kg/day; Consumer: 4.6 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 91.1 mg/kg/day; Consumer: 25.5 mg/kg/day

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 870 µg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 2.6 mg/kg/day

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 11.4 mg/kg; Consumer: 4.88 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, local effects
Worker Professional: 1.1 mg/cm²

2,6-di-tert-butyl-p-cresol

CAS: 128-37-0 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4.4 mg/kg/day; Consumer: 780 µg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4.7 mg/kg; Consumer: 1.7 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 0.25 mg/kg

8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use contact lenses.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Gloves characteristics:

Appropriate gloves thickness and breakthrough time may differ depending on the specific use conditions. Make sure to use protective gloves adequate to the conditions of use.

CEN standard(s) information:

Suitable protective gloves must comply with the appropriate EN 374 standard(s)

Respiratory protection:

Use adequate protective respiratory equipment.

Thermal Hazards:

Not expected if used as intended

Environmental exposure controls:

Prevent the product from entering sewers or surface and underground water.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Yellow
Odour:	Like: Ammonia
Odour threshold:	Not Relevant Notes: Data not available
pH:	=11.00

Kinematic viscosity:	Not Relevant Notes: Not determined, as it is not required for CLP classification
Melting point/freezing point:	N.A.
Boiling point or initial boiling point and boiling range:	N.A.
Flash point:	> 100°C / 212°F
Lower and upper explosion limit:	Not Relevant Notes: Not applicable as the mixture is not flammable
Relative vapour density:	N.A.
Vapour pressure:	N.A.
Density and/or relative density:	1.02 g/cm ³
Solubility in water:	N.A.
Solubility in oil:	Not Relevant Notes: Not determined, as it is not required for CLP classification
Partition coefficient n-octanol/water (log value):	Not Relevant Notes: Not applicable as the mixture is not flammable
Auto-ignition temperature:	Not Relevant Notes: Not applicable as the mixture is not flammable
Decomposition temperature:	Not Relevant Notes: Not applicable, as the mixture is not self-reactive
Flammability:	N.A.
Volatile Organic compounds - VOCs =	2.54%; 25.92g/L
Particle characteristics:	
Particle size:	N.A.

9.2. Other information

Explosive properties:	Not Relevant Notes: Not applicable, the mixture contains no explosive groups
No other relevant information	

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

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

Toxicological Information of the Preparation

a) acute toxicity	The product is classified: Acute Tox. 4(H302)
b) skin corrosion/irritation	The product is classified: Skin Corr. 1A(H314) Skin Corrosive
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)

d) respiratory or skin sensitisation	The product is classified: Skin Sens. 1B(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:

1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether

CAS: 84144-79-6 a) acute toxicity LD50 Oral Rat < 301 mg/kg

Polyoxpropylenediamine

CAS: 9046-10-0 a) acute toxicity LD50 Oral Rat = 2885 mg/kg
LC50 Inhalation Vapour Rat > 0.74 mg/l 8h
LD50 Skin Rabbit = 2980 mg/kg 24h

b) skin corrosion/irritation Skin Corrosive Rabbit Positive 4h

c) serious eye damage/irritation Eye Corrosive Rabbit Positive

f) carcinogenicity Genotoxicity Negative

g) reproductive toxicity No Observed Adverse Effect Level Skin Rat = 30 mg/kg

1,3-Cyclohexanedimethanamine

CAS: 2579-20-6 a) acute toxicity LD50 Oral Rat > 300 mg/kg
LD50 Skin Rabbit = 1700 mg/kg 24h

b) skin corrosion/irritation Skin Corrosive Rabbit Positive

d) respiratory or skin sensitisation Skin Sensitization Guinea pig Negative

f) carcinogenicity Genotoxicity Negative

g) reproductive toxicity No Observed Effect Level Oral Rat = 300 mg/kg

p-toluenesulphonic acid (containing a maximum of 5 % H₂SO₄)

CAS: 6192-52-5 a) acute toxicity LD50 Oral Rat ≥ 1104 mg/kg
LC50 Inhalation Vapour Rat ≥ 50 mg/l 8h
LD50 Skin Rabbit > 2000 mg/kg

b) skin corrosion/irritation Skin Corrosive Rabbit Positive 4h

c) serious eye damage/irritation Eye Corrosive Rabbit Positive

d) respiratory or skin sensitisation Skin Sensitization Guinea pig Negative

f) carcinogenicity Genotoxicity Negative
Carcinogenicity Negative

g) reproductive toxicity No Observed Adverse Effect Level Oral Rat = 1000 mg/kg

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0 a) acute toxicity ATE - Oral: 1.553 mg/kg bw
ATE - Dermal: 1.045 mg/kg bw
ATE - Inhalation (Dust/mist): 0.07 mg/l
LD50 Oral Rat = 1.62 ml/Kg
LC50 Inhalation Dust Rat = 0.07 mg/l 4h
LD50 Skin Rabbit = 1.09 ml/Kg

b) skin corrosion/irritation	Skin Corrosive Rabbit Positive
c) serious eye damage/irritation	Eye Corrosive Rabbit Positive
d) respiratory or skin sensitisation	Skin Sensitization Positive
	Respiratory Sensitization Negative
f) carcinogenicity	Genotoxicity Negative
	Carcinogenicity Skin Negative
g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 30 mg/kg

2,6-di-tert-butyl-p-cresol

CAS: 128-37-0	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg 24h
		LD50 Skin Rat > 2000 mg/kg 24h
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative 4h
	c) serious eye damage/irritation	Eye Irritant Rabbit No
	f) carcinogenicity	Genotoxicity Negative
		Carcinogenicity Negative
	g) reproductive toxicity	Reproductive Toxicity Oral Rat = 100 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

12.1. Toxicity

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

Eco-Toxicological Information:

Very toxic to aquatic organisms.

Very toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Acute 1(H400), Aquatic Chronic 1(H410)

List of Eco-Toxicological properties of the components

1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether

CAS: 84144-79-6	a) Aquatic acute toxicity:	LC50 Fish = 660 µg/L 96h
	a) Aquatic acute toxicity:	LC50 Daphnia = 14 mg/L 24h
	a) Aquatic acute toxicity:	EC50 Algae = 0.17 mg/L 72h
	a) Aquatic acute toxicity:	EC50 Sludge = 66 mg/L 3h

Polyoxpropylenediamine

CAS: 9046-10-0	a) Aquatic acute toxicity:	LC50 Fish Oncorhynchus mykiss > 15 mg/L 96h
	a) Aquatic acute toxicity:	LC50 Daphnia Daphnia magna = 80 mg/L 48h
	a) Aquatic acute toxicity:	EC50 Algae Pseudokirchneriella subcapitata = 15 mg/L 72h
	a) Aquatic acute toxicity:	NOEC Algae Pseudokirchneriella subcapitata = 1.4 mg/L 72h
	a) Aquatic acute toxicity:	EC50 Sludge Activated Sludge = 750 mg/L 3h
	a) Aquatic acute toxicity:	NOEC Sludge Activated Sludge = 310 mg/L 3h

1,3-Cyclohexanedimethanamine

CAS: 2579-20-6	a) Aquatic acute toxicity:	LC50 Fish Golden orfe = 130 mg/L 96h
	a) Aquatic acute toxicity:	LC50 Daphnia Daphnia magna = 33.1 mg/L 48h
	a) Aquatic acute toxicity:	EC50 Algae Pseudokirchneriella subcapitata = 56.7 mg/L 72h
	a) Aquatic acute toxicity:	EC50 microorganisms > 1000 mg/L

p-toluenesulphonic acid (containing a maximum of 5 % H₂SO₄)

CAS: 6192-52-5	a) Aquatic acute toxicity:	LC50 Fish Goldorfen = 325 mg/L 96h
	a) Aquatic acute toxicity:	LC50 Daphnia Daphnia Magna = 100 mg/L 48h
	a) Aquatic acute toxicity:	NOEC Algae Selenastrum capricornutum = 44.8 mg/L 72h
	a) Aquatic acute toxicity:	NOEC Sludge activated sludge = 580 mg/L 3h

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0 a) Aquatic acute toxicity: LC50 Fish *Poecilia reticulata* = 430 mg/L 96h
b) Aquatic chronic toxicity: NOEC Fish *Gasterosteus aculeatus* = 10 mg/L
a) Aquatic acute toxicity: LC50 *Daphnia magna* = 32 mg/L 48h
b) Aquatic chronic toxicity: NOEC *Daphnia magna* = 5.6 mg/L
a) Aquatic acute toxicity: EC50 Algae *Pseudokirchnerella subcapitata* = 1164 mg/L 72h
c) Bacteria toxicity: EC50 nitrifying bacteria = 32.7 mg/L
d) Terrestrial toxicity: LC50 Worm = 797 mg/kg

2,6-di-tert-butyl-p-cresol

CAS: 128-37-0 a) Aquatic acute toxicity: LC50 Fish *Danio rerio* > 0.57 mg/L 96h
b) Aquatic chronic toxicity: EC10 Fish *Oryzias latipes* = 0.053 mg/L
a) Aquatic acute toxicity: EC50 *Daphnia magna* = 0.48 mg/L 48h
a) Aquatic acute toxicity: EC50 Algae > 0.4 mg/L 72h
c) Bacteria toxicity: EC50 *Tetrahymena pyriformis* = 1.7 mg/L

12.2. Persistence and degradability

Polyoxpropylenediamine

CAS: 9046-10-0 Non-readily biodegradable Test: CO2 production; Value: 9.8
Notes: %; OECD Guideline 301B

1,3-Cyclohexanedimethanamine

CAS: 2579-20-6 Non-readily biodegradable Test: CO2 production
Notes: OECD Guideline No 301 B.

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

CAS: 6192-52-5 Readily biodegradable Test: CO2 production

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0 Readily biodegradable Value: 87
Notes: 21days

2,6-di-tert-butyl-p-cresol

CAS: 128-37-0 Non-readily biodegradable Test: Biochemical oxygen demand; Value: 4.5
Notes: OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))

12.3. Bioaccumulative potential

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

CAS: 6192-52-5 Not bioaccumulative

2,2'-iminodiethylamine; diethylenetriamine

CAS: 111-40-0 Bioaccumulative Test: BCF - Bioconcentration factor; Value: 6.3

2,6-di-tert-butyl-p-cresol

CAS: 128-37-0 Bioaccumulative Test: BCF - Bioconcentration factor; Value: 598.4
Notes: L/kg ww

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.

The product disposed of as such, pursuant to Regulation (EU) 1357/2014, must be classified as hazardous waste

A waste code according to the European List of Wastes (LoW) cannot be specified, due to dependence on the usage. Contact an authorized

waste disposal service.

Properties of waste which render it hazardous (Annex III, Directive 2008/98/EC):

N.A.

SECTION 14: Transport information

14.1. UN number or ID number

2735

14.2. UN proper shipping name

ADR-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether - Polyoxpropylenediamine)

IATA-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether - Polyoxpropylenediamine)

IMDG-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether - Polyoxpropylenediamine)

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: 1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-A, S-B

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 8

ADR - Hazard identification number: 80

ADR-Special Provisions: 274

ADR-Transport category (Tunnel restriction code): 2 (E)

ADR Limited Quantities: 1 L

ADR Excepted Quantities: E2

Air (IATA):

IATA-Passenger Aircraft: 851

IATA-Cargo Aircraft: 855

IATA-Label: 8

IATA-Subsidiary hazards: -

IATA-Erg: 8L

IATA-Special Provisions: A3 A803

Sea (IMDG):

IMDG-Stowage and handling: Category A

IMDG-Segregation: SG35 SGG18

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)

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

Regulation (EU) n. 2020/878

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

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

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. 2023/707
Regulation (EU) n. 2023/1434 (ATP 19 CLP)	Regulation (EU) n. 2023/1435 (ATP 20 CLP)
Regulation (EU) n. 2024/197 (ATP 21 CLP)	Regulation (EU) n. 2024/2564 (ATP 22 CLP)
Regulation (EU) n. 2024/2865	Regulation (EU) n. 2025/1222 (ATP 23 CLP)

Regulation (EC) nr 648/2004 (Detergents).

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: 3
- Restrictions related to the substances contained: 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)
Product belongs to category: E1	100	200

Explosives precursors – Regulation 2019/1148

No substances listed

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

No substances listed

German Water Hazard Class.

Class 2: hazardous for water.

German Lagerklasse according to TRGS 510:

LGK 8A

SVHC Substances:

No SVHC substances present in concentration >= 0.1%

15.2. Chemical safety assessment

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

Substances for which a Chemical Safety Assessment has been carried out:

- Polyoxpropylenediamine
- 1,3-Cyclohexanedimethanamine
- 2,6-di-tert-butyl-p-cresol

SECTION 16: Other information

Code	Description
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.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
3.1/2/Inhal	Acute Tox. 2	Acute toxicity (inhalation), Category 2
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4

3.2/1A	Skin Corr. 1A	Skin corrosion, Category 1A
3.2/1B	Skin Corr. 1B	Skin corrosion, Category 1B
3.2/1C	Skin Corr. 1C	Skin corrosion, Category 1C
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
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/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
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
--	---------------------------------

Acute Tox. 4, H302	Calculation method
Skin Corr. 1A, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1B, H317	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	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

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.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

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

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

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.

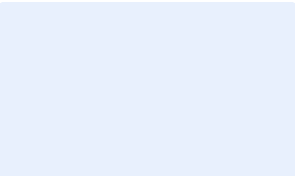
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
IC50: half maximal inhibitory concentration
ICAO: International Civil Aviation Organization.
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG: International Maritime Code for Dangerous Goods.
INCI: International Nomenclature of Cosmetic Ingredients.
IRCCS: Scientific Institute for Research, Hospitalization and Health Care
KAFH: Keep Away From Heat
KSt: Explosion coefficient.
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
NA: 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.
TWATLV: 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:

- Safety Data Sheet
- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 13: Disposal considerations
- SECTION 14: Transport information
- SECTION 15: Regulatory information
- SECTION 16: Other information



Exposure Scenario

2,6-di-tert-butyl-p-cresol

Exposure Scenario, 25/06/2021

Substance identity	
	2,6-di-tert-butyl-p-cresol
CAS No.	128-37-0
EINECS No.	204-881-4
Registration number	01-2119555270-46/01-2119565113-46

Table of contents

1. **ES 1** Widespread use by professional workers; Various products (PC9a, PC1)

1. ES 1

Widespread use by professional workers; Various products (PC9a, PC1)

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks
Date - Version	25/06/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Adhesives, sealants (PC1)

Environment Contributing Scenario

CS1	ERC8c - ERC8f
-----	---------------

1.2 Conditions of use affecting exposure

1.2. CS1: Environment Contributing Scenario (ERC8c, ERC8f)

Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)
----------------------------------	---

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

Amounts used:

Annual amount per site <= 27.5 t(tonnes)/year

Conditions and measures related to sewage treatment plant

STP type:

Onsite Sewage Treatment Plant

STP effluent (m³/day): 2000*Conditions and measures related to treatment of waste (including article waste)*

Waste treatment

Hazardous waste incineration
No specific measures identified.*Other conditions affecting environmental exposure*

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

Receiving surface water flow: 18000 m³/day*Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.*

Additional Good Practice Advice:

Ensure control measures are regularly inspected and maintained.

1.3 Exposure estimation and reference to its source

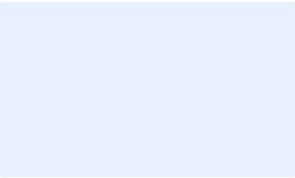
1.3. CS1: Environment Contributing Scenario (ERC8c, ERC8f)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
N/A	N/A	ECETOC TRA environment v3	< 1

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.



Exposure Scenario

1,3-Cyclohexanedimethanamine

Exposure Scenario, 29/12/2021

Substance identity	
	1,3-Cyclohexanedimethanamine
CAS No.	2579-20-6
EINECS No.	219-941-5
Registration number	01-2119543741-41

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1. **ES 1** Widespread use by professional workers

1. ES 1 Widespread use by professional workers	
1.1 TITLE SECTION	
Exposure Scenario name	Professional application of coatings and inks
Date - Version	29/12/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Environment Contributing Scenario	
CS1 Wet formulation	ERC8a - ERC8c
Worker Contributing Scenario	
CS2 Rolling, Brushing - Material transfers	PROC8a - PROC10
1.2 Conditions of use affecting exposure	
1.2. CS1: Environment Contributing Scenario: Wet formulation (ERC8a, ERC8c)	
Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) - Widespread use leading to inclusion into/onto article (indoor) (ERC8a, ERC8c)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid	
Vapour pressure: 34 Pa	
<i>Technical and organisational conditions and measures</i>	
Control measures to prevent releases No specific measures identified.	
<i>Conditions and measures related to sewage treatment plant</i>	
STP type: No specific measures identified.	
<i>Conditions and measures related to treatment of waste (including article waste)</i>	
Waste treatment This material and its container must be disposed of as hazardous. Dispose of this material and its container at hazardous or special waste collection point. Dispose of waste cans and containers according to local regulations.	
1.2. CS2: Worker Contributing Scenario: Rolling, Brushing - Material transfers (PROC8a, PROC10)	
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Roller application or brushing (PROC8a, PROC10)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid	
Vapour pressure: 34 Pa	
Concentration of substance in product: Covers percentage substance in the product up to 25 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	

Technical and organisational conditions and measures

Technical and organisational measures

Ensure operatives are trained to minimise exposures.

Local exhaust ventilation

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

Personal protection

Wear suitable gloves tested to EN374.

Wear suitable face shield.

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

Use suitable eye protection.

Wear suitable coveralls to prevent exposure to the skin.

Wear suitable respiratory protection.

Other conditions affecting worker exposure

Indoor use

Professional use

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.

Additional Good Practice Advice:

Clear spills immediately.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario: Wet formulation (ERC8a, ERC8c)

Additional information on exposure estimation:

As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

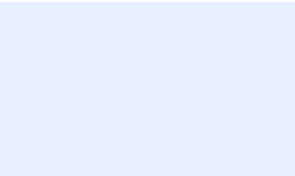
1.3. CS2: Worker Contributing Scenario: Rolling, Brushing - Material transfers (PROC8a, PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, short-term	N/A	ECETOC TRA worker v2.0	0.992
dermal, systemic, short-term	N/A	ECETOC TRA worker v2.0	0.005
combined routes, systemic, short-term	N/A	ECETOC TRA worker v2.0	0.998

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.



Exposure Scenario

Polyoxpropylenediamine

Exposure Scenario, 17/06/2021

Substance identity	
	Polyoxpropylenediamine
CAS No.	9046-10-0
EINECS No.	618-561-0
Registration number	01-2119557899-12

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1. **ES 1** Widespread use by professional workers; Various products (PC9b, PC32)

1. ES 1		Widespread use by professional workers; Various products (PC9b, PC32)	
1.1 TITLE SECTION			
Exposure Scenario name	Use in coatings - Use in rigid foams, coatings, adhesives and sealants - Waterproofing agent		
Date - Version	17/06/2021 - 1.0		
Life Cycle Stage	Widespread use by professional workers		
Main user group	Professional uses		
Sector(s) of use	Professional uses (SU22)		
Product Categories	Fillers, putties, plasters, modelling clay (PC9b) - Polymer preparations and compounds (PC32)		
Environment Contributing Scenario			
CS1	ERC8c		
Worker Contributing Scenario			
CS2 Rolling, Brushing	PROC10		
CS3 Mixing operations - Manual	PROC19		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) (ERC8c)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Vapour pressure: = 90 Pa			
Concentration of substance in product: Covers percentage substance in the product up to 25 %.			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Emission days: 365 days per year			
<i>Technical and organisational conditions and measures</i>			
Control measures to prevent releases			
Municipal sewage treatment plant is assumed.		Water - minimum efficiency of: = 1.5 %	
<i>Conditions and measures related to sewage treatment plant</i>			
STP type: Municipal Sewage Treatment Plant			
STP effluent (m³/day): 2000			
<i>Other conditions affecting environmental exposure</i>			
Local marine water dilution factor: 100 Local freshwater dilution factor: 10 Receiving surface water flow: 18000 m³/day Indoor use			
1.2. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)			

Process Categories	Roller application or brushing (PROC10)	
<i>Product (article) characteristics</i>		
Physical form of product: Liquid		
Vapour pressure: = 90 Pa		
Concentration of substance in product: Covers percentage substance in the product up to 25 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to = 480 min		
Frequency: Covers use up to = 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Avoid direct eye contact with product, also via contamination on hands.		
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>		
Personal protection		
Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training. Wear respiratory protection when its use is identified for certain contributing scenarios. Wear suitable respiratory protection. Wear suitable face shield.		Dermal - minimum efficiency of: = 90 %
<i>Other conditions affecting worker exposure</i>		
Indoor use Professional use Temperature: Assumes use at not more than 20 °C above ambient temperature.		
1.2. CS3: Worker Contributing Scenario: Mixing operations - Manual (PROC19)		
Process Categories	Manual activities involving hand contact (PROC19)	
<i>Product (article) characteristics</i>		
Physical form of product: Liquid		
Vapour pressure: = 90 Pa		
Concentration of substance in product: Covers percentage substance in the product up to 25 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to = 240 min		
Frequency: Covers use up to = 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Avoid direct eye contact with product, also via contamination on hands.		
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>		

Personal protection

Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.
Wear respiratory protection when its use is identified for certain contributing scenarios.
Wear suitable respiratory protection.
Wear suitable face shield.

Dermal - minimum efficiency of: = 95 %

Other conditions affecting worker exposure

Indoor use

Professional use

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.3 Exposure estimation and reference to its source

1.3. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	= 0.6857 mg/kg bw/day	ECETOC TRA worker v3	= 0.274286

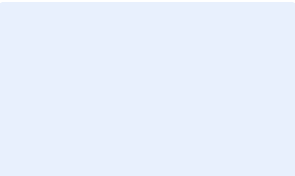
1.3. CS3: Worker Contributing Scenario: Mixing operations - Manual (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	= 1.7697 mg/kg bw/day	ECETOC TRA worker v3	= 0.707143

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.



Exposure Scenario

Polyoxpropylenediamine

Exposure Scenario, 17/06/2021

Substance identity	
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Sector(s) of use	Professional uses (SU22)		
Product Categories	Fillers, putties, plasters, modelling clay (PC9b) - Polymer preparations and compounds (PC32)		
Environment Contributing Scenario			
CS1	ERC8c		
Worker Contributing Scenario			
CS2 Rolling, Brushing	PROC10		
CS3 Mixing operations - Manual	PROC19		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) (ERC8c)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Vapour pressure: = 90 Pa			
Concentration of substance in product: Covers percentage substance in the product up to 25 %.			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Emission days: 365 days per year			
<i>Technical and organisational conditions and measures</i>			
Control measures to prevent releases			
Municipal sewage treatment plant is assumed.		Water - minimum efficiency of: = 1.5 %	
<i>Conditions and measures related to sewage treatment plant</i>			
STP type: Municipal Sewage Treatment Plant			
STP effluent (m³/day): 2000			
<i>Other conditions affecting environmental exposure</i>			
Local marine water dilution factor: 100 Local freshwater dilution factor: 10 Receiving surface water flow: 18000 m³/day Indoor use			
1.2. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)			

Process Categories	Roller application or brushing (PROC10)	
<i>Product (article) characteristics</i>		
Physical form of product: Liquid		
Vapour pressure: = 90 Pa		
Concentration of substance in product: Covers percentage substance in the product up to 25 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to = 480 min		
Frequency: Covers use up to = 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Avoid direct eye contact with product, also via contamination on hands.		
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>		
Personal protection		
Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training. Wear respiratory protection when its use is identified for certain contributing scenarios. Wear suitable respiratory protection. Wear suitable face shield.		Dermal - minimum efficiency of: = 90 %
<i>Other conditions affecting worker exposure</i>		
Indoor use Professional use Temperature: Assumes use at not more than 20 °C above ambient temperature.		
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Vapour pressure: = 90 Pa		
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Personal protection

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Wear respiratory protection when its use is identified for certain contributing scenarios.
Wear suitable respiratory protection.
Wear suitable face shield.

Dermal - minimum efficiency of: = 95 %

Other conditions affecting worker exposure

Indoor use

Professional use

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.3 Exposure estimation and reference to its source

1.3. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
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