

Safety Data Sheet

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

EPOBINDER (A)

Date of first edition: 9/20/2023

Safety Data Sheet dated 23/06/2025

version 4

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

1.1. Product identifier

Mixture identification:

Trade name: EPOBINDER (A)

Trade code: S100B0381 12

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

Recommended use: Primer

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)

Skin Irrit. 2 Causes skin irritation.

Eye Irrit. 2 Causes serious eye irritation.

Skin Sens. 1B May cause an allergic skin reaction.

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

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Hazard pictograms and Signal Word



Warning

Hazard statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P280 Wear protective gloves and eye 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.

P501 Dispose of contents/container in accordance with applicable regulations.

Contains

Cashew, nutshell liq., oligomeric reaction products with 1-chloro-2,3-epoxypropane

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

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether

4-morpholinecarbaldehyde

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 >= 0.1%

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: EPOBINDER (A)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
≥20-<50 %	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
≥20-<50 %	bis-[4-(2,3-epoxipropoxi)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 Specific Concentration Limits: C ≥ 5%: Eye Irrit. 2 H319 C ≥ 5%: Skin Irrit. 2 H315	01-2119456619-26
≥10-<20 %	Cashew, nutshell liq., oligomeric reaction products with 1-chloro-2,3-epoxypropane	EC:701-477-4	Skin Sens. 1B, H317	01-2119982994-15-0000
≥3-<5 %	p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	CAS:3101-60-8 EC:221-453-2	Skin Sens. 1, H317; Aquatic Chronic 2, H411, M-Chronic:1	01-2119959496-20-0004
≥1-<3 %	Alcohols, C12-15, branched and linear, ethoxylated	CAS:106232-83-1	Acute Tox. 4, H302; Eye Dam. 1, H318; Aquatic Chronic 3, H412	
≥0.5-<1 %	Titanium dioxide	CAS:13463-67-7 EC:236-675-5	Not classified as hazardous	
≥0.15-<0.20 %	4-morpholinecarbaldehyde	CAS:4394-85-8 EC:224-518-3	Skin Sens. 1B, H317	01-2119987993-12

<0.01 %	xylene	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226; Acute Tox. 4, H332; Acute Tox. 4, H312; Skin Irrit. 2, H315; STOT SE 3, H335; STOT RE 2, H373; Asp. Tox. 1, H304; Aquatic Chronic 3, H412; Eye Irrit. 2, H319, M-Chronic:1	01-2119488216-32
<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	01-2119433307-44
Specific Concentration Limits: C ≥ 10%: STOT SE 1 H370 3% ≤ C < 10%: STOT SE 2 H371				
<0.0015 %	ethyl acrylate	CAS:140-88-5 EC:205-438-8 Index:607-032-00-X	Flam. Liq. 2, H225; Acute Tox. 3, H331; Acute Tox. 4, H312; Acute Tox. 4, H302; STOT SE 3, H335; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	01-2119459301-46
Specific Concentration Limits: C ≥ 5%: STOT SE 3 H335 C ≥ 5%: Skin Irrit. 2 H315 C ≥ 5%: Eye Irrit. 2 H319				

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

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)

	OEL Type	Country	Occupational Exposure Limit
Calcium carbonate CAS: 471-34-1	NATIONAL	HUNGARY	Long Term: 10 mg/m ³ inhalable aerosol Source: 5/2020. (II. 6.) ITM
	NATIONAL	IRELAND	Long Term: 10 mg/m ³ Inhalable fraction Source: 2021 Code of Practice
	NATIONAL	IRELAND	Long Term: 4 mg/m ³ Respirable fraction Source: 2021 Code of Practice
	NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m ³ inhalable aerosol Source: EH40/2005 Workplace exposure limits
	NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m ³ respirable aerosol Source: EH40/2005 Workplace exposure limits

Titanium dioxide CAS: 13463-67-7	IRELAND		
	NATIONAL	CROATIA	Long Term: 10 mg/m3 U Source: NN 1/2021
	NATIONAL	CROATIA	Long Term: 4 mg/m3 R Source: NN 1/2021
	NATIONAL	FRANCE	Long Term: 10 mg/m3 Source: INRS outil65
	NATIONAL	LATVIA	Long Term: 6 mg/m3 Source: KN325P1
	NATIONAL	POLAND	Long Term: 10 mg/m3 4) Source: Dz.U. 2018 poz. 1286
	SUVA	SWITZERLAND	Long Term: 3 mg/m3 TWA mg/m3: (a), Formel / Formal, NIOSH Source: suva.ch/valeurs-limites
	ACGIH		Long Term: 2.5 mg/m3 (8h) Finescale particles; R ; A3 - LRT irr, pneumoconiosis
	NATIONAL	GERMANY	Long Term: 0.3 mg/m3; Short Term: 2.4 mg/m3 DFG; Long term and short term: excluding ultrafine particles; respirable fraction; multiplied by the material density; Source: TRGS900
	NATIONAL	BELGIUM	Long Term: 10 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	CROATIA	Long Term: 10 mg/m3 U Source: NN 1/2021
	NATIONAL	CROATIA	Long Term: 4 mg/m3 R Source: NN 1/2021
	NATIONAL	IRELAND	Long Term: 10 mg/m3 Source: 2021 Code of Practice
	NATIONAL	IRELAND	Long Term: 4 mg/m3 Source: 2021 Code of Practice
	NATIONAL	ROMANIA	Long Term: 10 mg/m3; Short Term: 15 mg/m3 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATIONAL	SPAIN	Long Term: 10 mg/m3 Source: LEP 2022
	NATIONAL	AUSTRIA	Long Term: 5 mg/m3; Short Term: 10 mg/m3 60(Miw), 2x, MAK, A Source: BGBl. II Nr. 156/2021
	NATIONAL	BULGARIA	Long Term: 10 mg/m3 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	DENMARK	Long Term: 6 mg/m3 K Source: BEK nr 2203 af 29/11/2021
	NATIONAL	ESTONIA	Long Term: 5 mg/m3 Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	FRANCE	Long Term: 10 mg/m3 Cancérogène de catégorie 2 Source: INRS outil65
	NATIONAL	GREECE	Long Term: 10 mg/m3 εισπν. Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	GREECE	Long Term: 5 mg/m3 αvapv. Source: ΦΕΚ 94/Α` 13.5.1999

NATIONAL	LATVIA	Long Term: 10 mg/m3 Source: KN325P1
NATIONAL	LITHUANIA	Long Term: 5 mg/m3 Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NORWAY	Long Term: 5 mg/m3 Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 10 mg/m3 4), 7) Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVAKIA	Long Term: 5 mg/m3 Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 5 mg/m3 3 Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 3 mg/m3 TWA mg/m3: (a), SSC, Formel / Formal, NIOSH Source: suva.ch/valeurs-limites
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m3 Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
NATIONAL	POLAND	Long Term: 2.5 mg/m3; Short Term: 5 mg/m3 6) Source: Dz.U. 2018 poz. 1286
NATIONAL	BELGIUM	Long Term: 10 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	IRELAND	Long Term: 6 mg/m3 Inhalable fraction Source: 2021 Code of Practice
NATIONAL	IRELAND	Long Term: 2.4 mg/m3 Respirable fraction Source: 2021 Code of Practice
NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 6 mg/m3 Inhalable aerosol Source: EH40/2005 Workplace exposure limits
NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 2.4 mg/m3 Respirable aerosol Source: EH40/2005 Workplace exposure limits
NATIONAL	GERMANY	Long Term: 4 mg/m3 DFG, 2, Y, E Source: TRGS 900
NATIONAL	SLOVENIA	Long Term: 4 mg/m3 Y, (I) Source: UL št. 72, 11. 5. 2021
NATIONAL	AUSTRIA	MAK Source: BGBl. II Nr. 156/2021
NATIONAL	ESTONIA	Long Term: 2 mg/m3 1 Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	LATVIA	Long Term: 1 mg/m3 Source: KN325P1

Aluminium oxide
CAS: 1344-28-1

SUVA	SWITZERLAND	SSC, Fibpulm / Lungenfibrose, Des VMEs se trouvent sous les substances associées / MAK-Werte finden sich unter den zugeordneten Stoffen Source: suva.ch/valeurs-limites
SUVA	SWITZERLAND	Long Term: 4 mg/m ³ TWA mg/m ³ : (i), SSC, Fibpulm / Lungenfibrose Source: suva.ch/valeurs-limites
NATIONAL	BELGIUM	Long Term: 1 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 10 mg/m ³ U Source: NN 1/2021
NATIONAL	CROATIA	Long Term: 4 mg/m ³ R Source: NN 1/2021
NATIONAL	ROMANIA	Long Term: 2 mg/m ³ ; Short Term: 5 mg/m ³ (Aerosoli) Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SPAIN	Long Term: 10 mg/m ³ véase Capítulo 9 Source: LEP 2022
NATIONAL	AUSTRIA	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ 60(Miw), 2x, A Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	AUSTRIA	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ 60(Miw), 2x, MAK, A Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	DENMARK	Long Term: 5 mg/m ³ Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 4 mg/m ³ 1 Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FRANCE	Long Term: 10 mg/m ³ Source: INRS outil65
NATIONAL	GREECE	Long Term: 10 mg/m ³ εισπν Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	GREECE	Long Term: 5 mg/m ³ αvapn Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	HUNGARY	Long Term: 5 mg/m ³ N Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	HUNGARY	Long Term: 2 mg/m ³ resp, N Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LATVIA	Long Term: 6 mg/m ³ Source: KN325P1
NATIONAL	LATVIA	Long Term: 4 mg/m ³ Source: KN325P1
NATIONAL	NORWAY	Long Term: 10 mg/m ³ 1 Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 2.5 mg/m ³ 4) Source: Dz.U. 2018 poz. 1286
NATIONAL	POLAND	Long Term: 1.2 mg/m ³ 6) Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVAKIA	Long Term: 4 mg/m ³

SUVA	SWITZERLAN D	Long Term: 3 mg/m ³ TWA mg/m ³ : (a), B, Formel / Formal, NIOSH Source: suva.ch/valeurs-limites
SUVA	SWITZERLAN D	Long Term: 3 mg/m ³ ; Short Term: 24 mg/m ³ TWA mg/m ³ : (a), Fimétal / Metallrauch, NIOSH Source: suva.ch/valeurs-limites
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)
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
ACGIH		Long Term: 20 ppm (8h) A4, BEI - URT and eye irr; hematologic eff; CNS impair
NATIONAL	AUSTRIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm 15(Miw), 4x, MAK Source: BGBl. II Nr. 156/2021
NATIONAL	BULGARIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Кожа Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	CZECHIA	Long Term: 200 mg/m ³ ; Short Term: Ceiling - 400 mg/m ³ B, D, I Source: Nařízení vlády č. 361-2007 Sb
NATIONAL	DENMARK	Long Term: 109 mg/m ³ - 25 ppm EH Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 200 mg/m ³ - 50 ppm; Short Term: 450 mg/m ³ - 100 ppm A Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 220 mg/m ³ - 50 ppm; Short Term: 440 mg/m ³ - 100 ppm iho Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Risque de pénétration percutanée Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	GREECE	Long Term: 435 mg/m ³ - 100 ppm; Short Term: 650 mg/m ³ - 150 ppm Δ Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	HUNGARY	Long Term: 221 mg/m ³ ; Short Term: 442 mg/m ³ b, BEM, EU1, R Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LITHUANIA	Long Term: 200 mg/m ³ - 50 ppm; Short Term: 450 mg/m ³ - 100 ppm O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLAND S	Long Term: 210 mg/m ³ ; Short Term: 442 mg/m ³ H Source: Arbeidsomstandighedenregeling - Lijst A
NATIONAL	NORWAY	Long Term: 108 mg/m ³ - 25 ppm H E Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 100 mg/m ³ ; Short Term: 200 mg/m ³ skóra Source: Dz.U. 2018 poz. 1286

xylene
CAS: 1330-20-7

NATIONAL	SLOVAKIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm K, 7) Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm H Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 220 mg/m ³ - 50 ppm; Short Term: 440 mg/m ³ - 100 ppm R/H, B, SNC / ZNS, NIOSH INRS Source: suva.ch/valeurs-limites
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 220 mg/m ³ - 50 ppm; Short Term: 441 mg/m ³ - 100 ppm Sk, BMGV Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
NATIONAL	BELGIUM	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm koža Source: 2000/39/EZ
NATIONAL	CYPRUS	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm δέρμα Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
NATIONAL	GERMANY	Long Term: 220 mg/m ³ - 50 ppm DFG, EU, H, 2(II) Source: TRGS 900
NATIONAL	IRELAND	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Sk, IOELV Source: 2021 Code of Practice
NATIONAL	ITALY	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Cute Source: D.lgs. 81/2008, Allegato XXXVIII
NATIONAL	LATVIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Āda Source: KN325P1
NATIONAL	LUXEMBOURG	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Peau Source: Mémorial A n.226 du 22 mars 2021
NATIONAL	MALTA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm skin Source: S.L.424.24
NATIONAL	PORTUGAL	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm Cutânea Source: Decreto-Lei n.º 1/2021
NATIONAL	ROMANIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm P, Dir. 2000/39 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SLOVENIA	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm K, BAT, EU1 Source: UL št. 72, 11. 5. 2021
NATIONAL	SPAIN	Long Term: 221 mg/m ³ - 50 ppm; Short Term: 442 mg/m ³ - 100 ppm vía dérmica, VLB®, VLI Source: LEP 2022
EU		Long Term: 221 mg/m ³ - 50 ppm (8h); Short Term: 442 mg/m ³ - 100 ppm Skin
methanol CAS: 67-56-1	ACGIH	Long Term: 200 ppm (8h); Short Term: 250 ppm Skin, BEI - Headache, eye dam, dizziness, nausea
	NATIONAL AUSTRIA	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1040 mg/m ³ - 800 ppm 15(Miw), 4x, MAK, H

Source: BGBl. II Nr. 156/2021

NATIONAL	BULGARIA	Long Term: 260 mg/m ³ - 200 ppm Кожа Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	CZECHIA	Long Term: 250 mg/m ³ ; Short Term: Ceiling - 1000 mg/m ³ D, B Source: Nařízení vlády č. 361-2007 Sb
NATIONAL	DENMARK	Long Term: 260 mg/m ³ - 200 ppm EH Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 250 mg/m ³ - 200 ppm; Short Term: 350 mg/m ³ - 250 ppm A Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 270 mg/m ³ - 200 ppm; Short Term: 330 mg/m ³ - 250 ppm iho Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1300 mg/m ³ - 1000 ppm Risque de pénétration percutanée Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	GREECE	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 325 mg/m ³ - 250 ppm Δ Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	HUNGARY	Long Term: 260 mg/m ³ b, i, BEM, EU2, R+T Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LITHUANIA	Long Term: 260 mg/m ³ - 200 ppm O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLAND S	Long Term: 133 mg/m ³ H Source: Arbeidsomstandighedenregeling - Lijst A
NATIONAL	NORWAY	Long Term: 130 mg/m ³ - 100 ppm H E Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 100 mg/m ³ ; Short Term: 300 mg/m ³ skóra Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVAKIA	Long Term: 260 mg/m ³ - 200 ppm K, 7) Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 250 mg/m ³ - 200 ppm; Short Term: 350 mg/m ³ - 250 ppm H, V Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 520 mg/m ³ - 400 ppm R/H, SSC, B, SNC / ZNS, INRS NIOSH Source: suva.ch/valeurs-limites
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 Sk Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
NATIONAL	BELGIUM	Long Term: 266 mg/m ³ - 200 ppm; Short Term: 333 mg/m ³ - 250 ppm D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 260 mg/m ³ - 200 ppm koža Source: 2006/15/EZ
NATIONAL	CYPRUS	Long Term: 260 mg/m ³ - 200 ppm δέρμα Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί

ethyl acrylate CAS: 140-88-5	του 2001 έως 2021	
	NATIONAL GERMANY	Long Term: 130 mg/m3 - 100 ppm DFG, EU, H, Y, 2(II) Source: TRGS 900
	NATIONAL IRELAND	Long Term: 260 mg/m3 - 200 ppm Sk, IOELV Source: 2021 Code of Practice
	NATIONAL ITALY	Long Term: 260 mg/m3 - 200 ppm Cute Source: D.lgs. 81/2008, Allegato XXXVIII
	NATIONAL LATVIA	Long Term: 260 mg/m3 - 200 ppm Āda Source: KN325P1
	NATIONAL LUXEMBOURG	Long Term: 260 mg/m3 - 200 ppm Peau Source: Mémorial A n.226 du 22 mars 2021
	NATIONAL MALTA	Long Term: 260 mg/m3 - 200 ppm skin Source: S.L.424.24
	NATIONAL PORTUGAL	Long Term: 260 mg/m3 - 200 ppm Cutânea Source: Decreto-Lei n.º 1/2021
	NATIONAL ROMANIA	Long Term: 260 mg/m3 - 200 ppm P, Dir. 2006/15 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATIONAL SLOVENIA	Long Term: 260 mg/m3 - 200 ppm; Short Term: 1040 mg/m3 - 800 ppm K, Y, BAT, EU2 Source: UL št. 72, 11. 5. 2021
	NATIONAL SPAIN	Long Term: 266 mg/m3 - 200 ppm vía dérmica, VLB®, VLI, r Source: LEP 2022
	EU	Long Term: 260 mg/m3 - 200 ppm (8h) Skin
	ACGIH	Long Term: 5 ppm (8h); Short Term: 15 ppm A4 - URT, eye, and GI irr, CNS impair, skin sens
	NATIONAL AUSTRIA	Long Term: 20 mg/m3 - 5 ppm; Short Term: Ceiling - 40 mg/m3 - 10 ppm 5(Mow), 8x, MAK, H, Sh Source: BGBl. II Nr. 156/2021
	NATIONAL BULGARIA	Long Term: 21 mg/m3 - 5 ppm; Short Term: 42 mg/m3 - 10 ppm Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL CYPRUS	Long Term: 21 mg/m3 - 5 ppm; Short Term: 42 mg/m3 - 10 ppm Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
	NATIONAL CZECHIA	Long Term: 20 mg/m3; Short Term: Ceiling - 40 mg/m3 I, S Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL DENMARK	Long Term: 21 mg/m3 - 5 ppm EHK Source: BEK nr 2203 af 29/11/2021
	NATIONAL ESTONIA	Long Term: 21 mg/m3 - 5 ppm; Short Term: 42 mg/m3 - 10 ppm S Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL FINLAND	Long Term: 21 mg/m3 - 5 ppm; Short Term: 42 mg/m3 - 10 ppm iho Source: HTP-ARVOT 2020
	NATIONAL FRANCE	Long Term: 21 mg/m3 - 5 ppm; Short Term: 42 mg/m3 - 10 ppm Source: INRS outil65, article R. 4412-149 du Code du travail
	NATIONAL GREECE	Long Term: 21 mg/m3 - 5 ppm; Short Term: 42 mg/m3 - 10 ppm Source: ΦΕΚ 19/Α` 9.2.2012

NATIONAL	HUNGARY	Long Term: 21 mg/m ³ ; Short Term: 42 mg/m ³ b, i, sz, EU4, N Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LATVIA	Long Term: 10 mg/m ³ Source: KN325P1
NATIONAL	LITHUANIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm J Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLANDS	Long Term: 21 mg/m ³ ; Short Term: 42 mg/m ³ Source: Arbeidsomstandighedenregeling - Lijst A
NATIONAL	NORWAY	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm H A K E S Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 20 mg/m ³ ; Short Term: 40 mg/m ³ skóra Source: Dz.U. 2018 poz. 1286
NATIONAL	PORTUGAL	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: Decreto-Lei n.º 1/2021
NATIONAL	SLOVAKIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm S Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 20 mg/m ³ - 5 ppm; Short Term: 40 mg/m ³ - 10 ppm M, S Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 10 mg/m ³ - 2.5 ppm; Short Term: 42 mg/m ³ - 10 ppm S, SSC, VRS Yeux / OAW Auge, INRS NIOSH Source: suva.ch/valeurs-limites
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
NATIONAL	BELGIUM	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm koža, alergen koža Source: 2009/161/EU
NATIONAL	GERMANY	Long Term: 8.3 mg/m ³ - 2 ppm DFG, EU, H, Y, Sh, 2(I) Source: TRGS 900
NATIONAL	IRELAND	Long Term: 20 mg/m ³ - 5 ppm; Short Term: 41 mg/m ³ - 10 ppm IOELV, Sk, Sens Source: 2021 Code of Practice
NATIONAL	ITALY	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: D.lgs. 81/2008, Allegato XXXVIII
NATIONAL	LUXEMBOURG	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: Mémorial A n.226 du 22 mars 2021
NATIONAL	MALTA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: S.L.424.24
NATIONAL	ROMANIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Dir. 2009/161 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SLOVENIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm K, Y, EU3 Source: UL št. 72, 11. 5. 2021
NATIONAL	SPAIN	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm VLI, Sen Source: LEP 2022

Biological limit values

xylene CAS: 1330-20-7	Biological Indicator: Methyl hippuric acid in urine; Sampling Period: End of turn Value: 2000 mg/L; Medium: Urine
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

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	Exposure Route: Fresh Water; PNEC Limit: 3 µg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 25.4 µg/l
	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
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
Titanium dioxide CAS: 13463-67-7	Exposure Route: Fresh Water; PNEC Limit: 0.184 mg/l
	Exposure Route: Marine water; PNEC Limit: 0.018 mg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1 mg/kg
	Exposure Route: Intermittent releases (marine water); PNEC Limit: 100 mg/kg
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 100 mg/kg
4-morpholinecarbaldehyde CAS: 4394-85-8	Exposure Route: Fresh Water; PNEC Limit: 500 µg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 5 mg/l
	Exposure Route: Marine water; PNEC Limit: 50 µg/l
	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
xylene CAS: 1330-20-7	Exposure Route: Fresh Water; PNEC Limit: 327 µg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 327 µg/l
	Exposure Route: Marine water; PNEC Limit: 327 µg/l
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 6.58 mg/l
	Exposure Route: Freshwater sediments; PNEC Limit: 12.46 mg/kg
	Exposure Route: Marine water sediments; PNEC Limit: 12.46 mg/kg
	Exposure Route: Soil; PNEC Limit: 2.31 mg/kg
methanol	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
 Exposure Route: Fresh Water; PNEC Limit: 2.72 µg/l

ethyl acrylate
 CAS: 140-88-5

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 11 µg/l
 Exposure Route: Marine water; PNEC Limit: 270 ng/L
 Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
 Exposure Route: Freshwater sediments; PNEC Limit: 21.3 µg/kg
 Exposure Route: Marine water sediments; PNEC Limit: 21.3 µg/kg
 Exposure Route: Soil; PNEC Limit: 1 mg/kg
 Exposure Route: Secondary poisoning; PNEC Limit: 10 mg/kg

Derived No Effect Level (DNEL) values

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-(4-(4-(oxiran-2-ylmethoxy)benzyl)phenoxy)methyl)oxirane
 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
 Worker Professional: 29.39 mg/m³; Consumer: 8.7 mg/m³

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

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/m³

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
 Worker Professional: 12.25 mg/m³

Titanium dioxide
 CAS: 13463-67-7

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
 Worker Professional: 10 mg/m³

4-morpholinecarbaldehyde
 CAS: 4394-85-8

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
 Worker Professional: 98 mg/m³; Consumer: 29 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
 Worker Professional: 1.7 mg/m³; 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

xylene
CAS: 1330-20-7

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 221 mg/m³; Consumer: 65.3 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 442 mg/m³; Consumer: 260 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 221 mg/m³; Consumer: 65.3 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 442 mg/m³; Consumer: 260 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 212 mg/kg; Consumer: 125 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 12.5 mg/kg

methanol
CAS: 67-56-1

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 130 mg/m³; Consumer: 26 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 130 mg/m³; Consumer: 26 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 130 mg/m³; Consumer: 26 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 130 mg/m³; Consumer: 26 mg/m³

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

ethyl acrylate
CAS: 140-88-5

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 21 mg/m³; Consumer: 2.5 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Short Term, local effects
Worker Professional: 0.92 mg/cm²; Consumer: 0.92 mg/cm²

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: Grey

Odour: N.A.

Odour threshold: N.A.
pH: Not Relevant
Kinematic viscosity: $\leq 20,5 \text{ mm}^2/\text{sec}$ (40 °C)
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: N.A.
Relative vapour density: N.A.
Vapour pressure: N.A.
Density and/or relative density: 1.55 g/cm^3
Solubility in water: Insoluble
Solubility in oil: Miscible
Partition coefficient n-octanol/water (log value): N.A.
Auto-ignition temperature: N.A.
Decomposition temperature: N.A.
Flammability: N.A.
Volatile Organic compounds - VOCs = 0.01 % ; 0.12 g/l

Particle characteristics:

Particle size: N.A.

9.2. Other information

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	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:

Reaction mass of 2,2'- a) acute toxicity LD50 Oral Rat > 5000 mg/kg

[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

		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	Mouse
	f) carcinogenicity	Genotoxicity Negative	Hamster oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 750 mg/kg	
bis-[4-(2,3-epoxipropoxy)phenyl]propane	a) acute toxicity	LD50 Oral Rabbit = 19800 mg/kg	
		LD50 Skin Rabbit > 20 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive	epoxy resin with an average molecular mass ≤ 700 d irritate skin of rabbits
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	f) carcinogenicity	Genotoxicity Negative Carcinogenicity Oral Rat = 15 mg/kg Carcinogenicity Skin Rat = 1 mg/kg	Mouse, oral NOAEL NOAEL
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 750 mg/kg	
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
		LD50 Skin Rat > 2000 mg/kg 24h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	f) carcinogenicity	Genotoxicity Rat Negative	
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 100 mg/kg	
Alcohols, C12-15, branched and linear, ethoxylated	a) acute toxicity	LD50 Oral > 300 mg/kg	
Titanium dioxide	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg LC50 Inhalation > 6.82 mg/l LD50 Skin Rat > 2000 mg/kg	
	c) serious eye damage/irritation	Eye Corrosive Negative Eye Irritant No	
	d) respiratory or skin	Skin Sensitization Negative	

	sensitisation		
	i) STOT-repeated exposure	No Observed Adverse Effect Level 1000	
4-morpholinecarbaldehyde	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	Mouse
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 1000 mg/kg	
xylene	a) acute toxicity	LD50 Oral Rat = 3523 ml/Kg	
		LC50 Inhalation Vapour Rat = 29000 mg/m3 4h	
		LD50 Skin Rabbit = 12126 mg/kg 24h	
	b) skin corrosion/irritation	Skin Corrosive Rabbit Negative 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes 1h	
	f) carcinogenicity	Genotoxicity Negative	Mouse subcutaneous route
	g) reproductive toxicity	No Observed Adverse Effect Level Inhalation Rat = 2171 mg/kg	
methanol	a) acute toxicity	LD50 Oral Rat >= 2528 mg/kg	
		LC50 Inhalation = 43.68 mg/l 6h	Cat
		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	Mouse intraperitoneal route
		Carcinogenicity Rat Negative	
	g) reproductive toxicity	Lowest Observed Adverse Effect Level Oral = 1000 mg/kg	Mouse
ethyl acrylate	a) acute toxicity	LD50 Oral Rat = 1120 ml/Kg	
		LC50 Inhalation Vapour Rat < 9.13 mg/l 4h	
		LD50 Skin Rat = 3049 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive	
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes 72h	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	f) carcinogenicity	Genotoxicity Negative	Mouse intraperitoneal route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 110 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:

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
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	EINECS: 701-263-0	a) Aquatic acute toxicity : LC50 Fish <i>Leuciscus idus</i> = 2.54 mg/L 96h
		a) Aquatic acute toxicity : LC50 <i>Daphnia magna</i> = 2.55 mg/L 48h b) Aquatic chronic toxicity : NOEC <i>Daphnia magna</i> = 0.3 mg/L - 21days
		a) Aquatic acute toxicity : EC50 Algae <i>Selenastrum capricornutum</i> = 1.8 mg/L 72h
bis-[4-(2,3-epoxipropoxy)phenyl]propane	CAS: 1675-54-3 - EINECS: 216-823-5 - INDEX: 603-073-00-2	a) Aquatic acute toxicity : NOEC Sludge activated sludge = 100 mg/L 3h a) Aquatic acute toxicity : LC50 Fish <i>Oncorhynchus mykiss</i> = 2 mg/L 96h
		a) Aquatic acute toxicity : LC50 <i>Daphnia magna</i> = 1.8 mg/L 48h a) Aquatic acute toxicity : EC50 Algae <i>Scenedesmus capricornutum</i> = 11 mg/L 72h EPA-660/3-75-009
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	CAS: 3101-60-8 - EINECS: 221-453-2	c) Bacteria toxicity : EC50 Sludge activated sludge = 100 mg/L 3h a) Aquatic acute toxicity : LC50 Fish rainbow trout = 7.5 mg/L „OECD Guideline 203 (Fish, Acute Toxicity Test)
		a) Aquatic acute toxicity : EC50 <i>Daphnia magna</i> = 67.9 mg/L 48h OECD Guideline 202 (<i>Daphnia</i> sp. Acute Immobilisation Test)
		a) Aquatic acute toxicity : EC50 Algae <i>Pseudokirchneriella subcapitata</i> = 9 mg/L 72h „OECD Guideline 201 (Alga, Growth Inhibition Test)
		a) Aquatic acute toxicity : EC50 Sludge activated sludge > 1000 mg/L 3h „OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Alcohols, C12-15, branched and linear, ethoxylated	CAS: 106232-83-1	a) Aquatic acute toxicity : LC50 Fish <i>Carassius auratus</i> < 10 mg/L 96h CESIO
		a) Aquatic acute toxicity : EC50 Honeybees <i>Daphnia</i> < 10 mg/L 48h CESIO
Titanium dioxide	CAS: 13463-67-7 - EINECS: 236-675-5	a) Aquatic acute toxicity : LC50 Fish <i>Pimephales promelas</i> (Cavedano americano) > 1000 mg/L 96h
		a) Aquatic acute toxicity : EC50 Algae <i>Pseudokirchneriella subcapitata</i> (alghe cloroficee) > 100 mg/L 72h
		a) Aquatic acute toxicity : NOEC Algae = 5600 mg/L
		a) Aquatic acute toxicity : EC50 <i>Daphnia magna</i> (Pulce d'acqua grande) > 100 mg/L 48h
4-morpholinecarbaldehyde	CAS: 4394-85-8 - EINECS: 224-518-3	a) Aquatic acute toxicity : LC50 Fish <i>Leuciscus idus</i> > 500 mg/L 96h „German Industrial Standard DIN 38412, Part 15
		a) Aquatic acute toxicity : EC50 <i>Daphnia magna</i> > 500 mg/L 48h EEC Directive 79/831/EEC

		a) Aquatic acute toxicity : EC50 Algae German Industrial Standard guideline DIN 38412, part 9 = 23.8 g/L 72h „German Industrial Standard guideline DIN 38412, part 9
		c) Bacteria toxicity : EC10 Pseudomonas putida > 2000 mg/L „German Industrial Standard guideline DIN 38412, part 8 an EC10
xylene	CAS: 1330-20-7 - EINECS: 215-535-7 - INDEX: 601-022-00-9	a) Aquatic acute toxicity : LC50 Fish freshwater fish = 2.6 mg/L 96h OECD 203 b) Aquatic chronic toxicity : NOEC Fish freshwater fish = 1.3 mg/L - 56days a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 1 mg/L 24h OECD 202 b) Aquatic chronic toxicity : NOEC Daphnia Ceriodaphnia dubia = 0.96 mg/L - 7days a) Aquatic acute toxicity : EC50 Algae freshwater algae = 1.3 mg/L 48h OECD 201 a) Aquatic acute toxicity : EC50 microorganisms = 96 mg/L OECD 301F d) Terrestrial toxicity : NOEC Worm earthworms = 16 mg/kg - 14days e) Plant toxicity : LC50 terrestrial plants = 1 mg/kg - 14days
methanol	CAS: 67-56-1 - EINECS: 200-659-6 - INDEX: 603-001-00-X	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 Daphnia magna = 22200 mg/L 48h b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 208 mg/L a) Aquatic acute toxicity : EC50 Algae Selenastrum capricornutum = 22000 mg/L 96h OECD 201 Guideline. d) Terrestrial toxicity : NOEC Worm Eisenia andrei = 10000 mg/kg d) Terrestrial toxicity : NOEC Folsomia candida = 1000 mg/kg OECD Guideline 232
ethyl acrylate	CAS: 140-88-5 - EINECS: 205-438-8 - INDEX: 607-032-00-X	a) Aquatic acute toxicity : LC50 Fish Salmo gairdneri = 4.6 mg/L 96h EPA OTS 797.1400 a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 7.9 mg/L 48h EPA OTS 797.1300 b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 0.19 mg/L EPA OTS 797.1330 a) Aquatic acute toxicity : EC50 Algae Selenastrum capricornutum = 4.5 mg/L 72h OECD TG 201 a) Aquatic acute toxicity : NOEC Sludge activated sludge = 100 mg/L

12.2. Persistence and degradability

Component	Persitence/Degradability:	Test	Duration	Value	Notes:
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			16.000	28days
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Non-readily biodegradable	Oxygen consumption			OECD Guideline 301 F (Ready Biodegradability Manometric Respirometry Test)
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	Non-readily biodegradable	Oxygen consumption			28days

Alcohols, C12-15, branched and linear, ethoxylated	Readily biodegradable	28d	>70% (OECD tg 301
4-morpholinecarbaldehyde	Readily biodegradable	Dissolved organic carbon	96.000 %; OECD 301 A
xylene	Readily biodegradable		
methanol	Readily biodegradable		
ethyl acrylate	Readily biodegradable	Biochemical oxygen demand	100.000

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
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	BCF - Bioconcentration factor	150.000	
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Bioaccumulative	BCF - Bioconcentration factor	31.000	
4-morpholinecarbaldehyde	Bioaccumulative	BCF - Bioconcentration factor	1.900	
xylene	Bioaccumulative	BCF - Bioconcentration factor	25.900	
methanol	Not bioaccumulative	BCF - Bioconcentration factor		< 10
ethyl acrylate	Bioaccumulative	BCF - Bioconcentration factor	2.000	

12.4. Mobility in soil

Data not available.

12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration >= 0.1%

12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects

Data not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover if possible. In so doing, comply with the local and national regulations currently in force. Disposal through discharge into wastewater is not permitted

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

3082

14.2. UN proper shipping name

ADR-Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane - 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)
IATA-Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane - 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)
IMDG-Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane - Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-

14.3. Transport hazard class(es)

ADR-Class: 9

IATA-Class: 9

IMDG-Class: 9

14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III

IMDG-Packing group: III

14.5. Environmental hazards

Most important toxic component: bis-[4-(2,3-epoxipropoxy)phenyl]propane

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-A, S-F

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 9

ADR - Hazard identification number: 90

ADR-Special Provisions: 274 335 375 601

ADR-Transport category (Tunnel restriction code): 3 (-)

ADR Limited Quantities: 5 L

ADR Excepted Quantities: E1

Air (IATA):

IATA-Passenger Aircraft: 964

IATA-Cargo Aircraft: 964

IATA-Label: 9

IATA-Subsidiary hazards: -

IATA-Erg: 9L

IATA-Special Provisions: A97 A158 A197 A215

Sea (IMDG):

IMDG-Stowage and handling: Category A

IMDG-Segregation: -

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: 274 335 969

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 (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. 2020/878
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):

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
Product belongs to category: E2	200	500

Explosives precursors – Regulation 2019/1148

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

No substances listed
German Water Hazard Class.
3: Severe hazard to waters

German Lagerklasse according to TRGS 510:
LGK 10

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

SECTION 16: Other information

Code	Description
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H370	Causes damage to organs.
H373	May cause 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
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
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

3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), Category 4
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4
3.10/1	Asp. Tox. 1	Aspiration hazard, Category 1
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
3.8/1	STOT SE 1	Specific target organ toxicity — single exposure, Category 1
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
3.9/2	STOT RE 2	Specific target organ toxicity — repeated exposure, Category 2
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

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

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
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Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1B, H317	Calculation method
Aquatic Chronic 2, H411	Calculation method

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

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

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:

- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- 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

Table of contents

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.

Safety Data Sheet

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

EPOBINDER (B)

Date of first edition: 9/20/2023

Safety Data Sheet dated 24/09/2025

version 2

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

1.1. Product identifier

Mixture identification:

Trade name: EPOBINDER (B)

Trade code: S100B0382 11

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

Recommended use: Products for the polymerisation of resins and foams (includes curing agents, hardeners, cross-linkers)

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. 1A	May cause an allergic skin reaction.
STOT RE 2	May cause damage to organs through prolonged or repeated exposure.
Aquatic Chronic 2	Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Hazard pictograms and Signal Word



Danger

Hazard statements

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H373	May cause damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

- P260 Do not breathe vapours.
- P280 Wear protective gloves and eye 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.
- P501 Dispose of contents/container in accordance with applicable regulations.

Contains

Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

1,3-benzenedimethanamine, n-(2-phenylethyl) derivs.

2-propenenitrile, reaction products with ethylenediamine, hydrogenated, reaction products with benzaldehyde, diethylenetriamine and triethylenetetramine, hydrogenated

2,4,6-tris(dimethylaminomethyl)phenol

3-aminopropyldimethylamine

3-aminopropyldiethylamine

Amines, polyethylenepoly-, triethylenetetramine fraction

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 >= 0.1%

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: EPOBINDER (B)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
≥50-<70 %	Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	CAS:68082-29-1 EC:500-191-5	Skin Irrit. 2, H315; Eye Dam. 1, H318; Aquatic Chronic 2, H411; Skin Sens. 1A, H317, M-Chronic:1	01-2119972320-44
≥10-<20 %	2-propenenitrile, reaction products with ethylenediamine, hydrogenated, reaction products with benzaldehyde, diethylenetriamine and triethylenetetramine, hydrogenated	CAS:1173092-74-4 EC:630-554-4	Acute Tox. 4, H302; Skin Corr. 1C, H314; Eye Dam. 1, H318; Skin Sens. 1, H317; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 2, H411	
≥10-<20 %	2,4,6-tris(dimethylaminomethyl)phenol	CAS:90-72-2 EC:202-013-9 Index:603-069-00-0	Acute Tox. 4, H302; Skin Corr. 1C, H314; Eye Dam. 1, H318	01-2119560597-27
≥10-<20 %	2-methylpentane-1,5-diamine	CAS:15520-10-2 EC:239-556-6	Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Corr. 1A, H314; STOT SE 3, H335	01-2119976310-41-0000
≥1-<3 %	3-aminopropyldimethylamine	CAS:109-55-7 EC:203-680-9 Index:612-061-00-6	Flam. Liq. 3, H226; Skin Corr. 1B, H314; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1B, H317; STOT SE 3, H335	

≥1-<3 %	1,3-benzenedimethanamine, n-(2-phenylethyl) derivs.	CAS:404362-22-7 EC:445-790-1	Acute Tox. 4, H302; Skin Corr. 1B, 01-0000018826-60 H314; Eye Dam. 1, H318; Skin Sens. 1A, H317; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410
≥1-<3 %	3-aminopropyldiethylamine	CAS:104-78-9 EC:203-236-4 Index:612-062-00-1	Flam. Liq. 3, H226; Acute Tox. 4, H302; Acute Tox. 3, H311; Skin Corr. 1B, H314; Eye Dam. 1, H318; Skin Sens. 1, H317; Repr. 2, H361d; STOT SE 3, H335
≥0.25-<0.3 %	Amines, polyethylenepoly-, triethylenetetramine fraction	CAS:90640-67-8 EC:292-588-2 Index:612-059-00-5	Acute Tox. 4, H312; Acute Tox. 4, H302; Skin Corr. 1B, H314; Skin Sens. 1, H317; Aquatic Chronic 3, H412; Eye Dam. 1, H318

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

Predicted No Effect Concentration (PNEC) values

Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine
CAS: 68082-29-1

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 43.4 µg/l

Exposure Route: Marine water; PNEC Limit: 434 ng/L

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

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

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

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

Exposure Route: Fresh Water; PNEC Limit: 84 µg/l

2,4,6-tris(dimethylaminomethyl)phenol
CAS: 90-72-2

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 840 µg/l

Exposure Route: Marine water; PNEC Limit: 8.4 µg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 200 µg/l

Exposure Route: Fresh Water; PNEC Limit: 72.8 µg/l

3-aminopropyldimethylamine
CAS: 109-55-7

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 340 µg/l

Exposure Route: Marine water; PNEC Limit: 7.28 µg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 69.5 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 735 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 73.5 µg/kg
Exposure Route: Soil; PNEC Limit: 104 µg/kg
Exposure Route: Fresh Water; PNEC Limit: 800 ng/L

1,3-
benzenedimethanamine,
n-(2-phenylethyl) derivs.
CAS: 404362-22-7

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1.5 µg/l
Exposure Route: Marine water; PNEC Limit: 80 ng/L
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 ng/L
Exposure Route: Freshwater sediments; PNEC Limit: 140 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 14 µg/kg
Exposure Route: Soil; PNEC Limit: 28 µg/kg
Exposure Route: Secondary poisoning; PNEC Limit: 167 µg/kg
Exposure Route: Fresh Water; PNEC Limit: 30 µg/l

3-
aminopropyldiethylamine
CAS: 104-78-9

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 300 µg/l
Exposure Route: Marine water; PNEC Limit: 3 µg/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 418.2 µg/kg
Exposure Route: Marine water sediments; PNEC Limit: 41.8 µg/kg
Exposure Route: Soil; PNEC Limit: 66 µg/kg
Exposure Route: Fresh Water; PNEC Limit: 26.8 µg/l

Amines,
polyethylenepoly-,
triethylenetetramine
fraction
CAS: 90640-67-8

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 200 µg/l
Exposure Route: Marine water; PNEC Limit: 2.68 µg/l
Exposure Route: Intermittent releases (marine water); PNEC Limit: 20 µg/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 130 µg/l
Exposure Route: Freshwater sediments; PNEC Limit: 8.572 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 857.2 µg/kg
Exposure Route: Soil; PNEC Limit: 1.25 mg/kg

Derived No Effect Level (DNEL) values

Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine
CAS: 68082-29-1
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.9 mg/m³; Consumer: 970 µg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.1 mg/kg; Consumer: 560 µg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 560 µg/kg

3-
aminopropyldimethylamine
CAS: 109-55-7
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.2 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 1.2 mg/m³

1,3-
benzenedimethanamine,
n-(2-phenylethyl) derivs.
CAS: 404362-22-7
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 180 µg/m³; Consumer: 40 µg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
Worker Professional: 4 µg/m³; Consumer: 2 µg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 50 µg/kg; Consumer: 30 µg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 30 µg/kg

3-aminopropyldiethylamine
CAS: 104-78-9
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 24.7 mg/m³; Consumer: 1.8 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.5 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 500 µg/l

Amines, polyethylenepoly-, triethylenetetramine fraction
CAS: 90640-67-8
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 540 µg/m³; Consumer: 96 µg/m³

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 140 µg/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:

Polychloroprene - CR: thickness ≥0,5mm; breakthrough time ≥480min.

Nitrile rubber - NBR: thickness ≥0,35mm; breakthrough time ≥480min.

Butyl rubber - IIR: thickness ≥0,5mm; breakthrough time ≥480min.

Fluorinated rubber - FKM: thickness ≥0,4mm; breakthrough time ≥480min.

Respiratory protection:

Gas filter type A . Filter A/P2 - Use suitable respiratory protective device only when aerosol or mist is formed. Use suitable respiratory protective device in case of insufficient ventilation. EN 149

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: N.A.

Odour: N.A.

Odour threshold: N.A.

pH: Not Relevant

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: N.A.

Relative vapour density: N.A.

Vapour pressure: N.A.

Density and/or relative density: 0.98 g/cm³

Solubility in water: N.A.

Solubility in oil: N.A.

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

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Flammability: N.A.

Volatile Organic compounds - VOCs = 2.00 % ; 19.55 g/l

Particle characteristics:

Particle size: N.A.

9.2. Other information

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 - Product has been tested with Corrositex - OECD 435 - In Vitro Membrane Barrier Test Method for Skin Corrosion. Results: >60 min. Corrosive sub-category 1C - PG III
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)
d) respiratory or skin sensitisation	The product is classified: Skin Sens. 1A(H317)
e) germ cell mutagenicity	Not classified
f) carcinogenicity	Based on available data, the classification criteria are not met Not classified
g) reproductive toxicity	Based on available data, the classification criteria are not met Not classified
h) STOT-single exposure	Based on available data, the classification criteria are not met Not classified
i) STOT-repeated exposure	Based on available data, the classification criteria are not met The product is classified: STOT RE 2(H373)
j) aspiration hazard	Not classified Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
		LD50 Skin Rat > 2000 mg/kg 24h	
	c) serious eye damage/irritation	Eye Irritant Yes 1h	
		Eye Corrosive Rabbit Positive	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 1000 mg/kg	
2-propenenitrile, reaction products with ethylenediamine, hydrogenated, reaction	a) acute toxicity	LD50 Oral = 500 mg/kg	

products with
benzaldehyde,
diethylenetriamine and
triethylenetetramine,
hydrogenated

2,4,6-
tris
(dimethylaminomethyl)
phenol

- | | |
|--------------------------------------|--|
| a) acute toxicity | LD50 Oral Rat = 2169 mg/kg |
| | LD50 Skin Rat > 1 ml/Kg 6h |
| b) skin corrosion/irritation | Skin Corrosive Rabbit Positive 4h |
| c) serious eye damage/irritation | Eye Irritant Rabbit Yes |
| d) respiratory or skin sensitisation | Skin Sensitization Guineapig Negative |
| g) reproductive toxicity | No Observed Effect Level Oral Rat = 15 mg/kg |

2-methylpentane-1,5-
diamine

- | | |
|-------------------|--|
| a) acute toxicity | ATE Oral = 1690 mg/kg |
| | ATE Inhalation = 11 mg/l |
| | LD50 Skin Rabbit = 18870 mg/kg |
| | LC50 Inhalation of aerosol Rat = 4.9 mg/l 1h |
| | LD50 Oral Rat = 1170 mg/kg |

3-
aminopropyldimethylamin
e

- | | | |
|----------------------------------|---|----------------------------|
| a) acute toxicity | LD50 Oral Rat = 410 mg/kg | |
| | LC50 Inhalation Vapour Rat > 4.31 mg/l 4h | |
| | LD50 Skin Rat > 400 mg/kg | < 2000 mg/kg bw |
| b) skin corrosion/irritation | Skin Corrosive Rabbit Positive | |
| c) serious eye damage/irritation | Eye Corrosive Rabbit Positive | |
| f) carcinogenicity | Genotoxicity Negative 24h | Mouse intraperitoneal rout |
| g) reproductive toxicity | No Observed Adverse Effect Level Oral Rat = 200 mg/kg | |

1,3-
benzenedimethanamine,
n-(2-phenylethyl) derivs.

- | | | |
|--------------------------------------|--|--------------------|
| a) acute toxicity | LD50 Oral Rat > 500 mg/kg | 500 and 2000 mg/kg |
| b) skin corrosion/irritation | Skin Corrosive Rabbit Positive | |
| d) respiratory or skin sensitisation | Skin Sensitization Positive | Mouse |
| g) reproductive toxicity | No Observed Effect Level Oral Rat = 15 mg/kg | |

3-
aminopropyldiethylamine

- | | | |
|--------------------------------------|--|--------------|
| a) acute toxicity | LD50 Oral Rat = 830 mg/kg | |
| | LC50 Inhalation Vapour Rat Negative 4h | No mortality |
| | LD50 Skin Rabbit = 524 mg/kg 24h | |
| b) skin corrosion/irritation | Skin Corrosive Rabbit Positive | |
| d) respiratory or skin sensitisation | Skin Sensitization Guineapig Negative | |

Amines,
polyethylenepoly-,
triethylenetetramine
fraction

- | | |
|-------------------|------------------------------|
| a) acute toxicity | LD50 Oral Rat = 1716.2 mg/kg |
|-------------------|------------------------------|

	LD50 Skin Rabbit = 1465.4 mg/kg 24h	
b) skin corrosion/irritation	Skin Corrosive Rabbit Positive	
c) serious eye damage/irritation	Eye Irritant Rabbit Yes	
d) respiratory or skin sensitisation	Skin Sensitization Guinea pig Positive	
f) carcinogenicity	Genotoxicity Negative	Mouse intraperitoneal route
	Carcinogenicity Skin = 50 mg/kg	Mouse NOAEL

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:

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	CAS: 68082-29-1 - EINECS: 500-191-5	a) Aquatic acute toxicity : LC50 Fish = 10 mg/L 96h
		a) Aquatic acute toxicity : EC100 Daphnia = 10 mg/L 24h
		a) Aquatic acute toxicity : EC50 Algae = 4.34 mL/L 72h
2,4,6-tris(dimethylaminomethyl)phenol	CAS: 90-72-2 - EINECS: 202-013-9 - INDEX: 603-069-00-0	a) Aquatic acute toxicity : LC50 Fish Cyorinus carpio = 175 mg/L 96h
		a) Aquatic acute toxicity : LC50 Salmo gairdneri < 240 mg/L 96h
		a) Aquatic acute toxicity : LC50 Daphnia Palemonetes vulgaris = 718 mg/L 96h
		a) Aquatic acute toxicity : EC50 Algae freshwater algae = 84 mg/L
2-methylpentane-1,5-diamine	CAS: 15520-10-2 - EINECS: 239-556-6	a) Aquatic acute toxicity : EC50 Algae > 100 mg/L 72h
		a) Aquatic acute toxicity : EC50 Daphnia = 19.8 48h
3-aminopropyldimethylamine	CAS: 109-55-7 - EINECS: 203-680-9 - INDEX: 612-061-00-6	a) Aquatic acute toxicity : LC50 Fish Leuciscus idus = 122 mg/L 96h OECD TG 203
		a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 59.5 mg/L 48h EEC method C.2
		b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 3.64 mg/L - 22days
		a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 34 mg/L 72h OECD 201
		a) Aquatic acute toxicity : EC50 Sludge activated sludge = 94.5 mg/L
1,3-benzenedimethanamine, n-(2-phenylethyl) derivs.	CAS: 404362-22-7 - EINECS: 445-790-1	a) Aquatic acute toxicity : LL50 Fish Oncorhynchus mykiss = 4 mg/L 96h OECD TG 203
		a) Aquatic acute toxicity : EL50 Daphnia Daphnia magna = 3.4 mg/L 48h OECD TG 202
		b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 0.14 mg/L OECD

TG 211 - 21days

a) Aquatic acute toxicity : NOELR Algae *Scenedesmus subspicatus* = 0.04 mg/L 72h OECD TG 201

a) Aquatic acute toxicity : NOEC Sludge activated sewage sludge = 10 mg/L 3h OECD TG 209

3-aminopropyldiethylamine CAS: 104-78-9 - EINECS: 203-236-4 - INDEX: 612-062-00-1 a) Aquatic acute toxicity : LC50 Fish *Leusciscus idus* = 146.6 mg/L 96h DIN 38412 part 15

a) Aquatic acute toxicity : LC50 *Daphnia magna* = 30.16 mg/L 48h „EU Directive 79/831/EEC, Annex V, part C

a) Aquatic acute toxicity : EC50 Algae *Pseudokirchneriella subcapitata* = 34 mg/L 72h

c) Bacteria toxicity : EC50 *Pseudomonas putida* = 100.5 mg/L „DIN 38412, part 8

Amines, polyethylenepoly-, triethylenetetramine fraction CAS: 90640-67-8 - EINECS: 292-588-2 - INDEX: 612-059-00-5 a) Aquatic acute toxicity : LC50 Fish *Pimephales promelas* = 330 mg/L 96h „U.S EPA- TSCA, 40 CFR Part 797 1400

a) Aquatic acute toxicity : EC50 *Daphnia magna* = 31.1 mg/L 48h EU Method C.2 (Acute Toxicity for *Daphnia*)

a) Aquatic acute toxicity : EC50 Algae *Pseudokirchneriella subcapitata* = 20 mg/L 72h OECD 201

d) Terrestrial toxicity : NOEC Worm *Eisenia fetida* = 62.5 mg/kg OECD Guideline 222 (Earthworm Reproduction Test (*Eisenia fetida*/*Eisenia andrei*)) - 56days

a) Aquatic acute toxicity : NOEC Algae soil microorganisms = 72 mg/L

12.2. Persistence and degradability

Component	Persitence/Degradability:	Test	Value	Notes:
Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	Non-readily biodegradable			OECD 301 D
2,4,6-tris(dimethylaminomethyl)phenol	Non-readily biodegradable			
3-aminopropyldimethylamine	Readily biodegradable		100.000	15days
1,3-benzenedimethanamine, n-(2-phenylethyl) derivs.	Non-readily biodegradable	Oxygen consumption		OECD TG 301C
3-aminopropyldiethylamine	Readily biodegradable			OECD Guideline 301A
Amines, polyethylenepoly-, triethylenetetramine fraction	Non-readily biodegradable			OECD 301D

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
Fatty acids, c18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	Bioaccumulative	BCF - Bioconcentration factor	77.400	L/kg ww; QSAR
3-aminopropyldimethylamine	Bioaccumulative	BCF - Bioconcentration factor	3.160	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. Disposal through discharge into wastewater is not permitted

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. (2-propenenitrile, reaction products with ethylenediamine, hydrogenated, reaction products with benzaldehyde, diethylenetriamine and triethylenetetramine, hydrogenated - 2,4,6-tris(dimethylaminomethyl)phenol)

IATA-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (2-propenenitrile, reaction products with ethylenediamine, hydrogenated, reaction products with benzaldehyde, diethylenetriamine and triethylenetetramine, hydrogenated - 2,4,6-tris(dimethylaminomethyl)phenol)

IMDG-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (2-propenenitrile, reaction products with ethylenediamine, hydrogenated, reaction products with benzaldehyde, diethylenetriamine and triethylenetetramine, hydrogenated - 2,4,6-tris(dimethylaminomethyl)phenol)

14.3. Transport hazard class(es)

ADR-Class: 8

IATA-Class: 8

IMDG-Class: 8

14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III

IMDG-Packing group: III

14.5. Environmental hazards

Most important toxic component: 1,3-benzenedimethanamine, n-(2-phenylethyl) derivs.

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): 3 (E)

ADR Limited Quantities: 5 L

ADR Excepted Quantities: E1

Air (IATA):

IATA-Passenger Aircraft: 852

IATA-Cargo Aircraft: 856

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: 223 274

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 (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. 2020/878

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, 75

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

Seveso III category according to Annex 1, part 1

Product belongs to category: E2 200

500

Explosives precursors – Regulation 2019/1148

No substances listed

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

No substances listed

German Water Hazard Class.

3: Severe hazard to waters

German Lagerklasse according to TRGS 510:

LGK 8A

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:

2,4,6-tris(dimethylaminomethyl)phenol

SECTION 16: Other information

Code	Description
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.

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.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
3.1/3/Dermal	Acute Tox. 3	Acute toxicity (dermal), Category 3
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), 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
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.4.2/1A	Skin Sens. 1A	Skin Sensitisation, Category 1A
3.4.2/1B	Skin Sens. 1B	Skin Sensitisation, Category 1B
3.7/2	Repr. 2	Reproductive toxicity, Category 2
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
3.9/2	STOT RE 2	Specific target organ toxicity — repeated exposure, Category 2
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

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

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
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Acute Tox. 4, H302	Calculation method
Skin Corr. 1A, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1A, H317	Calculation method
STOT RE 2, H373	Calculation method
Aquatic Chronic 2, H411	Calculation method

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

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

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:

- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 4: First aid measures

- 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 15: Regulatory information
- SECTION 16: Other information

Exposure Scenario

2,4,6-tris(dimethylaminomethyl)phenol

Exposure Scenario, 05/11/2021

Substance identity	
	2,4,6-tris(dimethylaminomethyl)phenol
CAS No.	90-72-2
INDEX No.	603-069-00-0
EINECS No.	202-013-9
Registration number	01-2119560597-27

Table of contents

1. **ES 1** Widespread use by professional workers; Fillers, putties, plasters, modelling clay (PC9b)

1. ES 1		Widespread use by professional workers; Fillers, putties, plasters, modelling clay (PC9b)	
1.1 TITLE SECTION			
Exposure Scenario name	Road and construction applications - Use in rigid foams, coatings, adhesives and sealants		
Date - Version	05/11/2021 - 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)		
Environment Contributing Scenario			
CS1	ERC8b - ERC8e		
Worker Contributing Scenario			
CS2 Material transfers	PROC8a		
CS3 Rolling, Brushing	PROC10		
CS4 Rolling, Brushing	PROC10		
CS5 Roller, spreader, flow application	PROC11		
CS6 Roller, spreader, flow application	PROC11		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8b, ERC8e)			
Environmental release categories	Widespread use of reactive processing aid (no inclusion into or onto article, indoor) - Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) (ERC8b, ERC8e)		
Product (article) characteristics			
Physical form of product: Liquid			
Vapour pressure: 0.197 Pa			
Concentration of substance in product: Covers percentage substance in the product up to 100 %.			
Amount used, frequency and duration of use (or from service life)			
Amounts used: Amount per use <= 0.0014 tonnes/day			
Release type: Continuous release			
Conditions and measures related to sewage treatment plant			
STP type: No specific measures identified. Water - minimum efficiency of: = 0.059 %			
Conditions and measures related to treatment of waste (including article waste)			
Waste treatment This material and its container must be disposed of as hazardous.			
1.2. CS2: Worker Contributing Scenario: Material transfers (PROC8a)			
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities		

(PROC8a)	
Product (article) characteristics	
Physical form of product: Liquid	
Vapour pressure: = 0.197 Pa	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
Amount used, frequency and duration of use/exposure	
Duration: Duration of contact < 30 min	
Technical and organisational conditions and measures	
Technical and organisational measures	
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).	Inhalation - minimum efficiency of: 30 %
Local exhaust ventilation	Inhalation - minimum efficiency of: 80 %
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 a full face respirator conforming to EN136.	Dermal - minimum efficiency of: 90 % Inhalation - minimum efficiency of: 95 %
Use suitable eye protection.	
Other conditions affecting worker exposure	
Body parts exposed: Assumes that potential dermal contact is limited to hands.	
1.2. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)	
Process Categories	Roller application or brushing (PROC10)
Product (article) characteristics	
Physical form of product: Liquid	
Vapour pressure: = 0.197 Pa	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
Amount used, frequency and duration of use/exposure	
Duration: Duration of contact < 440 min	
Technical and organisational conditions and measures	
Technical and organisational measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour).	Inhalation - minimum efficiency of: 44 %

Ensure that direction of application is only horizontal or downward.
Open doors and windows.

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 a full face respirator conforming to EN136. Wear suitable respiratory protection. Wear an impervious suit.	Dermal - minimum efficiency of: 90 % Inhalation - minimum efficiency of: 99 %
Use suitable eye protection.	

Other conditions affecting worker exposure

Indoor use

Professional use

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

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

1.2. CS4: 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:

= 0.197 Pa

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Duration of contact < 440 min

Technical and organisational conditions and measures

Technical and organisational measures

Mechanical ventilation giving at least [ACH]:	Inhalation - minimum efficiency of: 44 %
Ensure that direction of application is only horizontal or downward.	
Open doors and windows.	

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 a full face respirator conforming to EN136. Wear suitable respiratory protection. Wear an impervious suit.	Dermal - minimum efficiency of: 90 % Inhalation - minimum efficiency of: 99 %
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Use suitable eye protection.

Other conditions affecting worker exposure

Outdoor use

Professional use

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

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

1.2. CS5: 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:

= 0.197 Pa

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Duration of contact < 4 h

Technical and organisational conditions and measures

Technical and organisational measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).	Inhalation - minimum efficiency of: 44 %
Ensure that direction of application is only horizontal or downward.	
Open doors and windows.	

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.	Dermal - minimum efficiency of: 90 % Inhalation - minimum efficiency of: 99 %
Wear a full face respirator conforming to EN136.	
Wear suitable respiratory protection.	
Wear an impervious suit.	
Use suitable eye protection.	

Other conditions affecting worker exposure

Indoor use

Professional use

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

1.2. CS6: 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:

= 0.197 Pa

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Duration of contact < 4 h

Technical and organisational conditions and measures

Technical and organisational measures

Mechanical ventilation giving at least [ACH]:	Inhalation - minimum efficiency of: 44 %
Ensure that direction of application is only horizontal or downward.	
Open doors and windows.	

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 a full face respirator conforming to EN136. Wear suitable respiratory protection. Wear an impervious suit.	Dermal - minimum efficiency of: 90 % Inhalation - minimum efficiency of: 99 %
Use suitable eye protection.	

Other conditions affecting worker exposure

Outdoor use

Professional use

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

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario (ERC8b, ERC8e)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.00172 mg/L	EUSES v2.1	0.037
freshwater sediment	0.00701 mg/kg dry weight	EUSES v2.1	0.027
marine water	0.00017 mg/L	EUSES v2.1	0.037
marine sediment	0.0007 mg/kg dry weight	EUSES v2.1	0.027
Sewage treatment plant	0.014 mg/L	EUSES v2.1	0.069
Agricultural soil	8E-05 mg/kg dry weight	EUSES v2.1	< 0.01
Man via environment - Inhalation	< 0.0001 mg/m ³	EUSES v2.1	< 0.01

Man via environment - Oral	< 0.0001 mg/kg bw/day	EUSES v2.1	< 0.01
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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	0.023 mg/m ³	EASY TRA v3.6	0.004
inhalative, systemic, short-term	0.464 mg/m ³	EASY TRA v3.6	0.211
combined routes, systemic, long-term	N/A	N/A	0.247
dermal, systemic, long-term	0.03 mg/kg bw/day	RISKOFDERM v2.1	0.203

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	0.31 mg/m ³	ECETOC TRA worker v3	0.584
inhalative, systemic, short-term	0.4641238 mg/m ³	EASY TRA v3.6	0.59
combined routes, systemic, long-term	N/A	N/A	0.854
dermal, systemic, long-term	0.041 mg/kg bw/day	RISKOFDERM v2.1	0.27

1.3. CS4: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.039 mg/m ³	ECETOC TRA worker v3	0.073
inhalative, systemic, short-term	0.867 mg/m ³	EASY TRA v3.6	0.413
combined routes, systemic, long-term	N/A	N/A	0.343
dermal, systemic, long-term	0.041 mg/kg bw/day	RISKOFDERM v2.1	0.27

1.3. CS5: 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	0.367 mg/m ³	ART v1.5	0.022
inhalative, systemic, short-term	0.023 mg/m ³	ART v1.5	0.011
combined routes, systemic, long-term	N/A	N/A	0.827
dermal, systemic, long-term	0.121 mg/kg bw/day	RISKOFDERM v2.1	0.805

1.3. CS6: 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	0.019 mg/m ³	ART v1.5	0.037
inhalative, systemic, short-term	0.039 mg/m ³	ART v1.5	0.019
combined routes, systemic, long-term	N/A	N/A	0.101
dermal, systemic, long-term	0.05 mg/kg bw/day	RISKOFDERM v2.1	0.33

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.