

Safety Data Sheet

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

FUGALITE INVISIBLE (A)

Date of first edition: 4/26/2021

Safety Data Sheet dated 02/02/2026

version 8

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

1.1. Product identifier

Mixture identification:

Trade name: FUGALITE INVISIBLE (A)

Trade code: S100B0087 90

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

Recommended use: Mortar for joints

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. 1A May cause an allergic skin reaction.

Aquatic Chronic 3 Harmful to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Hazard pictograms and Signal Word



Warning

Hazard statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P102 Keep out of reach of children.

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

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

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

bis-[4-(2,3-epoxipropoxy)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

4-morpholinecarbaldehyde

triisobutyl phosphate

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

None.

2.3. Other hazards

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

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FUGALITE INVISIBLE (A)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
$\geq 5 < 10\%$	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
$\geq 5 < 10\%$	bis-[4-(2,3-epoxipropoxy)phenyl]propane	CAS:1675-54-3 EC:216-823-5 Index:603-073-00-2	Eye Irrit. 2, H319; Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411, M-Chronic:1	01-2119456619-26
			Specific Concentration Limits: C $\geq 5\%$: Eye Irrit. 2 H319 C $\geq 5\%$: Skin Irrit. 2 H315	
$\geq 5 < 10\%$	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	EC:701-263-0	Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411, M-Chronic:1	01-2119454392-40
$\geq 0.5 < 1\%$	4-morpholinecarbaldehyde	CAS:4394-85-8 EC:224-518-3	Skin Sens. 1B, H317	01-2119987993-12
$\geq 0.3 < 0.5\%$	1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	CAS:1065336-91-5 EC:915-687-0	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Repr. 2, H361; Skin Sens. 1A, H317, M-Chronic:1, M-Acute:1	01-2119491304-40-XXXX
$\geq 0.15 < 0.20\%$	triisobutyl phosphate	CAS:126-71-6 EC:204-798-3	Skin Sens. 1B, H317	

<0.0015 % 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 % 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
triisobutyl phosphate CAS: 126-71-6	NATIONAL	GERMANY	Long Term: 50 mg/m ³ AGS, Sh, 11, 2 (II) Source: TRGS 900
	NATIONAL	SLOVENIA	Long Term: 50 mg/m ³ ; Short Term: 100 mg/m ³ Source: UL št. 72, 11. 5. 2021
	NATIONAL	AUSTRIA	Long Term: 50 mg/m ³ ; Short Term: Ceiling - 100 mg/m ³ 60(Mow), 3x, MAK Source: BGBl. II Nr. 156/2021
xylene CAS: 1330-20-7	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
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 D	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

ethyl acrylate
CAS: 140-88-5

NATIONAL	LUXEMBOUR G	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
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/m ³ - 5 ppm; Short Term: Ceiling - 40 mg/m ³ - 10 ppm 5(Mow), 8x, MAK, H, Sh Source: BGBl. II Nr. 156/2021
NATIONAL	BULGARIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	CYPRUS	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
NATIONAL	CZECHIA	Long Term: 20 mg/m ³ ; Short Term: Ceiling - 40 mg/m ³ I, S Source: Nařízení vlády č. 361-2007 Sb
NATIONAL	DENMARK	Long Term: 21 mg/m ³ - 5 ppm EHK Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm S Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm iho Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 10 ppm Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	GREECE	Long Term: 21 mg/m ³ - 5 ppm; Short Term: 42 mg/m ³ - 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	NETHERLAND S	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
EU		Long Term: 21 mg/m ³ - 5 ppm (8h); Short Term: 42 mg/m ³ - 10 ppm

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

Predicted No Effect Concentration (PNEC) values

bis-[4-(2,3-epoxipropoxy)phenyl]propane
CAS: 1675-54-3
Exposure Route: Fresh Water; PNEC Limit: 0.006 mg/l

Exposure Route: Marine water; PNEC Limit: 600 ng/L

Exposure Route: Freshwater sediments; PNEC Limit: 0.996 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.099 mg/kg

Exposure Route: Soil; PNEC Limit: 0.196 mg/kg

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

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.018 mg/l

Exposure Route: Fresh Water; PNEC Limit: 3 µg/l

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

Exposure Route: 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

Exposure Route: Fresh Water; PNEC Limit: 500 µg/l

4-
morpholinecarbaldehyde
CAS: 4394-85-8

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

Exposure Route: Fresh Water; PNEC Limit: 2.2 µg/l

1-Methyl 1,2,2,6,6-
pentamethylpiperidin-4-yl
decanedioate
bis(1,2,2,6,6-
pentamethylpiperidin-4-
yl) decanedioate
CAS: 1065336-91-5

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 9 µg/l

Exposure Route: Marine water; PNEC Limit: 220 ng/L

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 1.05 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 110 µg/kg

Exposure Route: Soil; PNEC Limit: 210 µg/kg

Exposure Route: Fresh Water; PNEC Limit: 14.3 µg/l

triisobutyl phosphate
CAS: 126-71-6

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 143 µg/l

Exposure Route: Marine water; PNEC Limit: 1.43 µg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 3.72 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 2.05 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 205 µg/kg

Exposure Route: Soil; PNEC Limit: 426 µg/kg

Exposure Route: Fresh Water; PNEC Limit: 327 µg/l

xylene
CAS: 1330-20-7

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

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

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

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

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

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

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate
bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate
CAS: 1065336-91-5

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 680 µg/m³; Consumer: 170 µg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 500 µg/kg; Consumer: 250 µg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 50 µg/kg

triisobutyl phosphate CAS: 126-71-6	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Consumer: 8.89 mg/m ³
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 4.25 mg/kg; Consumer: 2.13 mg/kg
	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 2.13 mg/kg
xylene CAS: 1330-20-7	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Professional: 221 mg/m ³ ; Consumer: 65.3 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Worker Professional: 442 mg/m ³ ; Consumer: 260 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 221 mg/m ³ ; Consumer: 65.3 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Professional: 442 mg/m ³ ; Consumer: 260 mg/m ³
	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
ethyl acrylate CAS: 140-88-5	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 21 mg/m ³ ; Consumer: 2.5 mg/m ³
	Exposure Route: Human Dermal; Exposure Frequency: Short Term, local effects Worker Professional: 0.92 mg/cm ² ; Consumer: 0.92 mg/cm ²

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:

N.A.

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: Colourless

Odour: Characteristic

Odour threshold: N.A.

pH: N.A.

Kinematic viscosity: N.A.

Melting point/freezing point: N.A.

Boiling point or initial boiling point and boiling range: 200 °C (392 °F)

Flash point: > 93°C

Lower and upper explosion limit: N.A. (Not applicable as the mixture is not flammable)

Relative vapour density: N.A.

Vapour pressure: N.A.

Density and/or relative density: 1.77 g/cm³

Solubility in water: Insoluble

Solubility in oil: N.A.

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

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Flammability: ; Not applicable as the mixture is not flammable

Volatile Organic compounds - VOCs = 0.00 % ; 0.01 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. 1A(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:

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	
bis-[4-(2,3-epoxypropoxy)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	Mouse, oral
		Carcinogenicity Oral Rat = 15 mg/kg	NOAEL
		Carcinogenicity Skin Rat = 1 mg/kg	NOAEL
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 750 mg/kg	
Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)] bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)] bis(oxirane) and 2-(2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl)oxirane	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg	
		LD50 Skin Rat > 2000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	f) carcinogenicity	Genotoxicity Negative	Hamster oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 750 mg/kg	
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	
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	a) acute toxicity	LD50 Oral Rat = 3230 mg/kg	
		LD50 Skin Rat > 3170 mg/kg	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative 24h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	
	d) respiratory or skin sensitisation	Skin Sensitization Guinea pig Positive	
	f) carcinogenicity	Genotoxicity Negative	Mouse oral route

	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 30 mg/kg	
triisobutyl phosphate	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg LC50 Inhalation of aerosol Rat > 5.14 mg/l 4h LD50 Skin Rabbit > 5000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit 48h	
	d) respiratory or skin sensitisation	Skin Sensitization Guinea pig 6h	
	f) carcinogenicity	Genotoxicity Negative	Mouse intraperitoneal route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rabbit = 150 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	
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 $\geq 0.1\%$

SECTION 12: Ecological information

12.1. Toxicity

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

Eco-Toxicological Information:

Harmful to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 3(H412)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	CAS: 3101-60-8 - EINECS: 221-453-2	a) Aquatic acute toxicity : LC50 Fish rainbow trout = 7.5 mg/L ,,OECD Guideline 203 (Fish, Acute Toxicity Test) a) Aquatic acute toxicity : EC50 Daphnia magna = 67.9 mg/L 48h OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

		a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 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)
bis-[4-(2,3-epoxipropoxy)phenyl]propane	CAS: 1675-54-3 - EINECS: 216-823-5 - INDEX: 603-073-00-2	a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss = 2 mg/L 96h
		a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 1.8 mg/L 48h
		a) Aquatic acute toxicity : EC50 Algae Scenedesmus capricornutum = 11 mg/L 72h EPA-660/3-75-009
		c) Bacteria toxicity : EC50 Sludge activated sludge = 100 mg/L 3h
Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-(2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl)oxirane	EINECS: 701-263-0	a) Aquatic acute toxicity : LC50 Fish Leuciscus idus = 2.54 mg/L 96h
		a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 2.55 mg/L 48h
		b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 0.3 mg/L - 21days
		a) Aquatic acute toxicity : EC50 Algae Selenastrum capricornutum = 1.8 mg/L 72h
		a) Aquatic acute toxicity : NOEC Sludge activated sludge = 100 mg/L 3h
4-morpholinecarbaldehyde	CAS: 4394-85-8 - EINECS: 224-518-3	a) Aquatic acute toxicity : LC50 Fish Leuciscus idus > 500 mg/L 96h „German Industrial Standard DIN 38412, Part 15
		a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna > 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
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	CAS: 1065336-91-5 - EINECS: 915-687-0	a) Aquatic acute toxicity : LC50 Fish Danio rerio = 0.9 mg/L 96h OECD Guideline 203
		b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 1 mg/L OECD guideline 211
		a) Aquatic acute toxicity : EC50 Algae Desmodesmus subspicatus = 1.68 mg/L 72h OECD Guideline 201
		a) Aquatic acute toxicity : EC20 Sludge activated sludge >= 100 mg/L 3h OECD guideline 209
triisobutyl phosphate	CAS: 126-71-6 - EINECS: 204-798-3	a) Aquatic acute toxicity : LC50 Fish Danio rerio = 12.6 mg/L 96h OECD 203
		a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 24 mg/L 48h OECD 202
		a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 14.3 mg/L 72h OECD 201
		a) Aquatic acute toxicity : NOEC Sludge = 37.2 mg/L OECD guideline 209 - 30min
xylene	CAS: 1330-20-7 - EINECS: 215-	a) Aquatic acute toxicity : LC50 Fish freshwater fish = 2.6 mg/L 96h OECD 203

ethyl acrylate	CAS: 140-88-5 - EINECS: 205- 438-8 - INDEX: 607-032-00-X	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
		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	Value	Notes:
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	Non-readily biodegradable	Oxygen consumption		28days
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Non-readily biodegradable	Oxygen consumption		OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-(2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl)oxirane	Non-readily biodegradable		16.000	28days
4-morpholinecarbaldehyde	Readily biodegradable	Dissolved organic carbon	96.000	%; OECD 301 A
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	Non-readily biodegradable		38.000	28days
triisobutyl phosphate	Readily biodegradable	CO2 production	75.000	28days
xylene	Readily biodegradable			
ethyl acrylate	Readily biodegradable	Biochemical oxigen demand	100.000	

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Bioaccumulative	BCF - Bioconcentration factor	31.000
Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-	Bioaccumulative	BCF - Bioconcentration factor	150.000

phenyleneoxymethylene)]bis
(oxirane) and 2-({2-[4-(oxiran-2-
ylmethoxy)benzyl]phenoxy}
methyl)oxirane

4-morpholinecarbaldehyde	Bioaccumulative	BCF - Bioconcentration factor	1.900
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	Not bioaccumulative		
triisobutyl phosphate	Not bioaccumulative		
xylene	Bioaccumulative	BCF - Bioconcentration factor	25.900
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 $\geq 0.1\%$

12.6. Endocrine disrupting properties

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

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

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number or ID number

N/A

14.2. UN proper shipping name

ADR-Shipping Name: N/A

IATA-Shipping Name: N/A

IMDG-Shipping Name: N/A

14.3. Transport hazard class(es)

ADR-Class: N/A

IATA-Class: N/A

IMDG-Class: N/A

14.4. Packing group

ADR-Packing Group: N/A

IATA-Packing group: N/A

IMDG-Packing group: N/A

14.5. Environmental hazards

Marine pollutant: No

Environmental Pollutant: No

IMDG-EMS: N/A

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: N/A

ADR - Hazard identification number: N/A

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

Air (IATA):

IATA-Passenger Aircraft: N/A
IATA-Cargo Aircraft: N/A
IATA-Label: N/A
IATA-Subsidiary hazards: N/A
IATA-Erg: N/A
IATA-Special Provisions: N/A

Sea (IMDG):

IMDG-Stowage and handling: N/A
IMDG-Segregation: N/A
IMDG-Subsidiary hazards: N/A
IMDG-Special Provisions: N/A

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

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

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

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

Regulation (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: None.

Restrictions related to the substances contained: 40, 75

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

None

Explosives precursors – Regulation 2019/1148

No substances listed

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

No substances listed

German Water Hazard Class.

3: Severe hazard to waters

German Lagerklasse according to TRGS 510:

LGK 10

SVHC Substances:

No SVHC substances present in concentration $\geq 0.1\%$ **15.2. Chemical safety assessment**

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

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

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

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

SECTION 16: Other information

Code	Description
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361	Suspected of damaging fertility or the unborn child in contact with skin and if swallowed.
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
2.6/2	Flam. Liq. 2	Flammable liquid, Category 2
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
3.1/3/Inhal	Acute Tox. 3	Acute toxicity (inhalation), 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
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.4.2/1A	Skin Sens. 1A	Skin Sensitisation, Category 1A
3.4.2/1B	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 Classification procedure**

(EC) Nr. 1272/2008

Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1A, H317	Calculation method
Aquatic Chronic 3, H412	Calculation method

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

Main bibliographic sources:

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

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

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

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate
bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

Exposure Scenario, 20/04/2022

Substance identity	
	1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate
CAS No.	1065336-91-5
EINECS No.	915-687-0

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

1. ES 1

Widespread use by professional workers; Various products (PC9a, PC9b)

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks - Use in rigid foams, coatings, adhesives and sealants
Date - Version	20/04/2022 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Fillers, putties, plasters, modelling clay (PC9b)

Environment Contributing Scenario

CS1 ERC8c

Worker Contributing Scenario

CS2 Material transfers PROC8a

CS3 Rolling, Brushing PROC10

1.2 Conditions of use affecting exposure**1.2. CS1: Environment Contributing Scenario (ERC8c)**

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

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

Liquid

Vapour pressure:

Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa

Amount used, frequency and duration of use (or from service life)**Emission days:** 365 days per year***Technical and organisational conditions and measures*****Control measures to prevent releases**

Air - minimum efficiency of: 15 % Water - minimum efficiency of: 1 %

Conditions and measures related to sewage treatment plant**STP type:**

Municipal Sewage Treatment Plant

Water - minimum efficiency of: = 88.9 %

STP effluent (m³/day): 2000***Other conditions affecting environmental exposure*****Local marine water dilution factor:** 100**Local freshwater dilution factor:** 10**Receiving surface water flow:** 18000 m³/day

Indoor use

1.2. CS2: Worker Contributing Scenario: 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: Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa	
Concentration of substance in product: Covers percentage substance in the product up to 5 %.	
Amount used, frequency and duration of use/exposure	
Duration: Covers use up to 480 min	
Frequency: Covers use up to 5 days per week	
Technical and organisational conditions and measures	
Technical and organisational measures Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Ensure operatives are trained to minimise exposures.	
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.	Derma - minimum efficiency of: = 90 %
Wear suitable face shield. Wear suitable coveralls to prevent exposure to the skin.	
Other conditions affecting worker exposure	
Indoor use Professional use	
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.	
Additional Good Practice Advice: Ensure no splashing occurs during transfer.	
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: Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa	
Concentration of substance in product: Covers percentage substance in the product up to 5 %.	
Amount used, frequency and duration of use/exposure	
Duration: Covers use up to 480 min	
Frequency: Covers use up to 5 days per week	
Technical and organisational conditions and measures	
Technical and organisational measures	

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Ensure operatives are trained to minimise exposures.

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 %
Wear suitable face shield. Wear suitable coveralls to prevent exposure to the skin.	

Other conditions affecting worker exposure

Indoor use
Professional use

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

Additional Good Practice Advice:

Ensure no splashing occurs during transfer.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario (ERC8c)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
soil	N/A	ECETOC TRA environment v2.0	0.0579

Additional information on exposure estimation:

Risk from environmental exposure is driven by soil.

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	= 0.2743 mg/kg bw/day	ECETOC TRA worker v3	= 0.137143
inhalative, systemic, long-term	= 0.4233 mg/m ³	ECETOC TRA worker v3	= 0.119924

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	= 0.5486 mg/kg bw/day	ECETOC TRA worker v3	= 0.274286
inhalative, systemic, long-term	= 0.274286 mg/m ³	ECETOC TRA worker v3	= 0.097

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

Guidance to check compliance with the exposure scenario:

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

Exposure Scenario

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
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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)
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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 (or from service life)

Amounts used:

Daily amount per site = 175 kg/day

Release type: Continuous release

Emission days: 365 days per year

Technical and organisational conditions and measures

Control measures to prevent releases

Provide onsite wastewater removal efficiency of ³ (%):

Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant

STP effluent (m³/day): 2

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

Waste treatment

Dispose of waste cans and containers according to local regulations.

Other conditions affecting environmental exposure

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)

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)

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)

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

FUGALITE INVISIBLE (B)

Date of first edition: 6/25/2021

Safety Data Sheet dated 02/02/2026

version 10

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

1.1. Product identifier

Mixture identification:

Trade name: FUGALITE INVISIBLE (B)

Trade code: S100B0167 42

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

Recommended use: hardener

Uses advised against: All uses other than recommended ones

1.3. Details of the supplier of the safety data sheet

Company: KERAKOLL S.p.A.

Via dell'Artigianato, 9

41049 Sassuolo (MODENA) - ITALY

Tel.+39 0536 816511 Fax. +39 0536816581

safety@kerakoll.com

1.4. Emergency telephone number

European emergency phone number 112

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

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

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

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

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

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

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

Eye Dam. 1 Causes serious eye damage.

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

Aquatic Acute 1 Very toxic to aquatic life.

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

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Hazard pictograms and Signal Word



Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P102 Keep out of reach of children.

- 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

3-aminomethyl-3,5,5-trimethylcyclohexylamine

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Polyoxpropylenediamine

M-phenylenebis(methylamine)

FATTY ACIDS, C18 UNSAT., REACTION PRODUCTS WITH TETRAETHYLENEPENTAMINE

Ammine, polietilenpoli, frazionetetraetilenpentamminica

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

None.

2.3. Other hazards

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

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FUGALITE INVISIBLE (B)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
$\geq 20 < 50$ %	Polyoxpropylenediamine	CAS:9046-10-0 EC:618-561-0	Skin Corr. 1C, H314; Eye Dam. 1, H318; Aquatic Chronic 3, H412	01-2119557899-12
$\geq 20 < 50$ %	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine	CAS:38294-64-3 EC:500-101-4	Skin Corr. 1B, H314; Skin Sens. 1, H317; Eye Dam. 1, H318; Aquatic Chronic 3, H412	
$\geq 10 < 20$ %	M-phenylenebis(methylamine)	CAS:1477-55-0 EC:216-032-5	Acute Tox. 4, H302; Acute Tox. 4, H332; Aquatic Chronic 3, H412; Eye Dam. 1, H318; Skin Sens. 1, H317; Skin Corr. 1B, H314, EUH071	01-2119480150-50
$\geq 10 < 20$ %	3-aminomethyl-3,5,5-trimethylcyclohexylamine	CAS:2855-13-2 EC:220-666-8 Index:612-067-00-9	Acute Tox. 4, H302; Skin Corr. 1B, H314; Eye Dam. 1, H318; Skin Sens. 1A, H317	01-2119514687-32
			Specific Concentration Limits: C $\geq 0.001\%$: Skin Sens. 1A H317	
			Acute Toxicity Estimate: ATE - Oral: 1030mg/kg bw	
$\geq 3 < 5$ %	FATTY ACIDS, C18 UNSAT., REACTION PRODUCTS WITH TETRAETHYLENEPENTAMINE	CAS:1226892-45-0 EC:629-725-6	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Sens. 1, H317; Skin Corr. 1C, H314; Eye Dam. 1, H318, M-Chronic:1, M-	01-2119487006-38

Acute:10

≥0.5-<1 % Ammine,polietilenpoli,
frazionetetraetilenpentamminica

CAS:90640-66-7
EC:292-587-7

Acute Tox. 4, H302; Acute Tox. 4, 01-2119487290-37
H312; Eye Dam. 1, H318; Skin
Sens. 1, H317; Skin Corr. 1B,
H314; Aquatic Acute 1, H400;
Aquatic Chronic 1, H410

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:

- 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
M-phenylenebis(methylamine) CAS: 1477-55-0	ACGIH		Short Term: Ceiling - 0.018 ppm Skin - Eye, skin, and GI irr
	NATIONAL	BELGIUM	Short Term: 0.1 mg/m3 D, M Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	IRELAND	Long Term: 0.1 mg/m3 Source: 2021 Code of Practice
	NATIONAL	AUSTRIA	Long Term: 0.1 mg/m3; Short Term: Ceiling - 0.1 mg/m3 Mow, MAK Source: GKV, BGBl. II Nr. 156/2021
	NATIONAL	DENMARK	Short Term: Ceiling - 0.1 mg/m3 - 0.02 ppm LH Source: BEK nr 2203 af 29/11/2021
	NATIONAL	FINLAND	Short Term: Ceiling - 0.1 mg/m3 kattoarvo, iho Source: HTP-ARVOT 2020
	NATIONAL	FRANCE	Short Term: 0.1 mg/m3 Source: INRS outil65
	NATIONAL	NORWAY	Short Term: Ceiling - 0.1 mg/m3 T Source: FOR-2021-06-28-2248
	SUVA	SWITZERLAND	Long Term: 0.1 mg/m3 R/H, S, TGI Peau Yeux / GIT Haut Auge Source: suva.ch/valeurs-limites
2,2',2''-nitriлотriethanol CAS: 102-71-6	ACGIH		Long Term: 5 mg/m3 (8h) Eye and skin irr
	NATIONAL	BELGIUM	Long Term: 5 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	GERMANY	Long Term: 1 mg/m3 DFG, Y, E, 1 (I) Source: TRGS 900

2,2'-iminodiethanol;
diethanolamine
CAS: 111-42-2

NATIONAL	IRELAND	Long Term: 5 mg/m ³ Source: 2021 Code of Practice
NATIONAL	SPAIN	Long Term: 5 mg/m ³ Source: LEP 2022
NATIONAL	AUSTRIA	Long Term: 5 mg/m ³ - 0.8 ppm; Short Term: 10 mg/m ³ - 1.6 ppm 15(Miw), 4x, MAK, S, E Source: BGBl. II Nr. 156/2021
NATIONAL	CZECHIA	Long Term: 5 mg/m ³ ; Short Term: Ceiling - 10 mg/m ³ D, I Source: Nařízení vlády č. 361-2007 Sb
NATIONAL	DENMARK	Long Term: 3.1 mg/m ³ - 0.5 ppm Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ S Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 5 mg/m ³ Source: HTP-ARVOT 2020
NATIONAL	LITHUANIA	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ J Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NORWAY	Long Term: 5 mg/m ³ Source: FOR-2021-06-28-2248
NATIONAL	SWEDEN	Long Term: 5 mg/m ³ - 0.8 ppm; Short Term: 10 mg/m ³ - 1.6 ppm H, V Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 5 mg/m ³ ; Short Term: 5 mg/m ³ TWA mg/m ³ : (I), SSC, VRS Peau Yeux / OAW Haut Auge, NIOSH Source: suva.ch/valeurs-limites
ACGIH		Long Term: 1 mg/m ³ (8h) IFV, Skin, A3 - Liver and kidney dam
NATIONAL	AUSTRIA	Long Term: 2 mg/m ³ - 0.46 ppm; Short Term: 4 mg/m ³ - 0.92 ppm 15(Miw), 4x, MAK, H, Sh, Reaktion mit nitrosierenden Agentien kann zur Bildung des kanzerogenen N-Nitrosodiethanolamins führen. Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	BULGARIA	Long Term: 10 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	CZECHIA	Long Term: 5 mg/m ³ ; Short Term: Ceiling - 10 mg/m ³ I Source: Nařízení vlády č. 361-2007 Sb
NATIONAL	DENMARK	Long Term: 2 mg/m ³ - 0.46 ppm H Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 5 mg/m ³ - 3 ppm; Short Term: 30 mg/m ³ - 6 ppm A Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 2 mg/m ³ - 0.46 ppm iho Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 15 mg/m ³ - 3 ppm Source: INRS outil65
NATIONAL	GREECE	Long Term: 15 mg/m ³ - 3 ppm Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	LITHUANIA	Long Term: 15 mg/m ³ - 3 ppm; Short Term: 30 mg/m ³ - 6 ppm O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NORWAY	Long Term: 15 mg/m ³ - 3 ppm Source: FOR-2021-06-28-2248

NATIONAL	POLAND	Long Term: 9 mg/m ³ skóra Source: Dz.U. 2018 poz. 1286
NATIONAL	SWEDEN	Long Term: 15 mg/m ³ - 3 ppm; Short Term: 30 mg/m ³ - 6 ppm H, V Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 1 mg/m ³ ; Short Term: 1 mg/m ³ TWA mg/m ³ : (i), R/H, S, SSC, Rein VRS Foie / Niere OAW Leber, En présence d'agents nitrosants, il peut se former de la N-Nitrosodiéthanolamine cancérigène. La substance peut être présente sous forme de vapeur et d'aérosol en même temps. / Reaktion mit nitrosierenden Agentien kann zur Bildung des kanzerogenen N-Nitrosodiethanolamins führen. Der Stoff kann gleichzeitig als Aerosol und Dampf vorliegen. Source: suva.ch/valeurs-limites
NATIONAL	BELGIUM	Long Term: 1 mg/m ³ - 0.2 ppm D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 15 mg/m ³ - 3 ppm koža Source: NN 1/2021
NATIONAL	GERMANY	Long Term: 0.5 mg/m ³ - 0.11 ppm AGS, H, Sh, Y, 11, 6, 1 (I) Source: TRGS 900
NATIONAL	IRELAND	Long Term: 1 mg/m ³ - 0.2 ppm OEL (8-hour reference period) mg/m ³ : IFV Source: 2021 Code of Practice
NATIONAL	SLOVENIA	Long Term: 0.5 mg/m ³ - 0.11 ppm; Short Term: 0.5 mg/m ³ - 0.11 ppm K, Y Source: UL št. 72, 11. 5. 2021
NATIONAL	SPAIN	Long Term: 1 mg/m ³ - 0.2 ppm vía dérmica, f, FIV Source: LEP 2022

Predicted No Effect Concentration (PNEC) values

Polyoxpropylenediamine Exposure Route: Fresh Water; PNEC Limit: 15 µg/l
CAS: 9046-10-0

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 150 µg/l

Exposure Route: Marine water; PNEC Limit: 14.2 µg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 7.5 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 132 µg/kg

Exposure Route: Marine water sediments; PNEC Limit: 125 µg/kg

Exposure Route: Soil; PNEC Limit: 17.6 µg/kg

Exposure Route: Secondary poisoning; PNEC Limit: 6.93 mg/kg

Exposure Route: Fresh Water; PNEC Limit: 94 µg/l

M-phenylenebis (methylamine)
CAS: 1477-55-0

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 152 µg/l

Exposure Route: Marine water; PNEC Limit: 9.4 µg/l

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

Exposure Route: Freshwater sediments; PNEC Limit: 430 µg/kg

Exposure Route: Marine water sediments; PNEC Limit: 43 µg/kg

Exposure Route: Soil; PNEC Limit: 45 µg/kg

3-aminomethyl-3,5,5-trimethylcyclohexylamine
CAS: 2855-13-2

Exposure Route: Fresh Water; PNEC Limit: 60 µg/l

Exposure Route: Marine water; PNEC Limit: 6 µg/l

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

Exposure Route: Marine water sediments; PNEC Limit: 578 µg/kg

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

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.23 mg/l

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

Derived No Effect Level (DNEL) values

Polyoxpropylenediamine
CAS: 9046-10-0 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 1.36 mg/m³

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

M-phenylenebis
(methylamine)
CAS: 1477-55-0 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: 200 µg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 330 µg/kg

3-aminomethyl-3,5,5-trimethylcyclohexylamine
CAS: 2855-13-2 Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 20.1 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 20.1 mg/m³

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Consumer: 526 µg/kg

8.2. Exposure controls

Eye protection:

Eye glasses with side protection.

Protection for skin:

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

Protection for hands:

Protection for hands:

Suitable materials for safety gloves; EN 374:

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

Respiratory protection:

Use adequate protective respiratory equipment.

Thermal Hazards:

Not expected if used as intended

Environmental exposure controls:

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: Amber

Odour: Like: Ammonia

Odour threshold: N.A.

pH: N.A.

Kinematic viscosity: N.A.

Melting point/freezing point: N.A.

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

Flash point: > 93°C

Lower and upper explosion limit: N.A. (Not applicable as the mixture is not liquid)

Relative vapour density: N.A.

Vapour pressure: N.A. (Not applicable as the mixture is not solid)

Density and/or relative density: 1.02 g/cm³

Solubility in water: Immiscible

Solubility in oil: N.A. (Some data is not known)

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

Auto-ignition temperature: N.A. (Some data is not known)

Decomposition temperature: N.A.

Flammability: N.A.

Volatile Organic compounds - VOCs = 0 % ; 0 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 Corr. 1B(H314)
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)
d) respiratory or skin sensitisation	The product is classified: Skin Sens. 1A(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:

Polyoxpropylenediamine	a) acute toxicity	LD50 Oral Rat = 2885 mg/kg	
		LC50 Inhalation Vapour Rat > 0.74 mg/l 8h	
		LD50 Skin Rabbit = 2980 mg/kg 24h	
	b) skin corrosion/irritation	Skin Corrosive Rabbit Positive 4h	
	c) serious eye damage/irritation	Eye Corrosive Rabbit Positive	
M-phenylenebis(methylamine)	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Skin Rat = 30 mg/kg	
	a) acute toxicity	LD50 Oral Rat = 1001 mg/kg	
		LC50 Inhalation Mist Rat = 1.34 mg/l 4h	
		LD50 Skin Rat > 3100 mg/kg	
	b) skin corrosion/irritation	Skin Irritant Rat Positive 4h	

	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	f) carcinogenicity	Genotoxicity Negative	Mouse
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 450 mg/kg	
3-aminomethyl-3,5,5-trimethylcyclohexylamine	a) acute toxicity	ATE - Oral : 1030 mg/kg bw LD50 Oral Rat = 1030 mg/kg LC50 Inhalation of aerosol Rat > 5.01 mg/l 4h LD50 Skin Rat > 2000 mg/kg	
	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 Carcinogenicity Negative	Mouse, oral route
FATTY ACIDS, C18 UNSAT., REACTION PRODUCTS WITH TETRAETHYLENEPENTAMINE	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg bw	

11.2. Information on other hazards

Endocrine disrupting properties:

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

SECTION 12: Ecological information

12.1. Toxicity

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

Eco-Toxicological Information:

Very toxic to aquatic organisms.

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Acute 1(H400), Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
Polyoxpropylenediamine	CAS: 9046-10-0 - EINECS: 618-561-0	a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss > 15 mg/L 96h OECD Guideline 203 a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 80 mg/L 48h OECD Guideline 202 a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 15 mg/L 72h OECD Guideline 201 a) Aquatic acute toxicity : NOEC Algae Pseudokirchneriella subcapitata = 1.4 mg/L 72h OECD Guideline 201 a) Aquatic acute toxicity : EC50 Sludge Activated Sludge = 750 mg/L 3h OECD Guideline 209 a) Aquatic acute toxicity : NOEC Sludge Activated Sludge = 310 mg/L 3h OECD Guideline 209
M-phenylenebis(methylamine)	CAS: 1477-55-0 - EINECS: 216-032-5	a) Aquatic acute toxicity : LC50 Fish Oryzias latipes = 87.6 mg/L 96h OECD 203 a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna = 15.2 mg/L 48h OECD 202

b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 4.7 mg/L OECD 211 - 21days

a) Aquatic acute toxicity : EC50 Algae Selenastrum capricornutum = 32.1 mg/L 72h OECD 201

a) Aquatic acute toxicity : EC50 Sludge activated sludge > 1000 mg/L OECD 209

3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS: 2855-13-2
- EINECS: 220-666-8 - INDEX:
612-067-00-9

a) Aquatic acute toxicity : LC50 Fish Leuciscus idus = 110 mg/L 96h ,,according to 84/449/EEC, C.1, 1984

a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna = 23 mg/L 48h OECD 202

a) Aquatic acute toxicity : EC50 Algae Scenedesmus subspicatus > 50 mg/L 72h

b) Aquatic chronic toxicity : NOEC Daphnia = 3 mg/L 504h

c) Bacteria toxicity : EC10 Pseudomonas putida = 1120 mg/L 18h

12.2. Persistence and degradability

Component	Persistence/Degradability:	Test	Value	Notes:
Polyoxpropylenediamine	Non-readily biodegradable	CO2 production	9.800	%; OECD Guideline 301B
M-phenylenebis(methylamine)	Non-readily biodegradable	Oxygen consumption		OECD 301B
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Non-readily biodegradable	Dissolved organic carbon	8.000	%; EU-method C.4-A

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Notes:
M-phenylenebis(methylamine)	Not bioaccumulative	BCF - Bioconcentration factor	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)

12.4. Mobility in soil

Component	Mobility in soil
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Not mobile

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. (Polyoxpropylenediamine - 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine)

IATA-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (Polyoxpropylenediamine - 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-

trimethylcyclohexylamine)

IMDG-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (Polyoxpropylenediamine - 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine)

14.3. Transport hazard class(es)

ADR-Class: 8

IATA-Class: 8

IMDG-Class: 8

14.4. Packing group

ADR-Packing Group: II

IATA-Packing group: II

IMDG-Packing group: II

14.5. Environmental hazards

Most important toxic component: FATTY ACIDS, C18 UNSAT., REACTION PRODUCTS WITH TETRAETHYLENEPENTAMINE

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-A, S-B

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 8

ADR - Hazard identification number: 80

ADR-Special Provisions: 274

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

ADR Limited Quantities: 1 L

ADR Excepted Quantities: E2

Air (IATA):

IATA-Passenger Aircraft: 851

IATA-Cargo Aircraft: 855

IATA-Label: 8

IATA-Subsidiary hazards: -

IATA-Erg: 8L

IATA-Special Provisions: A3 A803

Sea (IMDG):

IMDG-Stowage and handling: Category A

IMDG-Segregation: SG35 SGG18

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: 274

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

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

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

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

Regulation (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: 75

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

Seveso III category according to Annex 1, part 1

	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
Product belongs to category: E1	100	200
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:

Polyoxpropylenediamine

3-aminomethyl-3,5,5-trimethylcyclohexylamine

SECTION 16: Other information

Code	Description
EUH071	Corrosive to the respiratory tract.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
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
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
3.2/1B	Skin Corr. 1B	Skin corrosion, Category 1B
3.2/1C	Skin Corr. 1C	Skin corrosion, Category 1C
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
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

Skin Corr. 1B, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1A, H317	Calculation method
Aquatic Acute 1, H400	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 14: Transport information
- SECTION 15: Regulatory information
- SECTION 16: Other information

Exposure Scenario

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Exposure Scenario, 01/06/2022

Substance identity	
	3-aminomethyl-3,5,5-trimethylcyclohexylamine
CAS No.	2855-13-2
INDEX No.	612-067-00-9
EINECS No.	220-666-8
Registration number	01-2119514687-32

Table of contents

1. **ES 1** Widespread use by professional workers; Various products (PC9b, PC9a, PC1, PC32)

1. ES 1 Widespread use by professional workers; Various products (PC9b, PC9a, PC1, PC32)

1.1 TITLE SECTION

Exposure Scenario name	Use in rigid foams, coatings, adhesives and sealants
Date - Version	01/06/2022 - 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) - Coatings and paints, thinners, paint removers (PC9a) - Adhesives, sealants (PC1) - Polymer preparations and compounds (PC32)

Environment Contributing Scenario

CS1	ERC8c
CS2	ERC8f

Worker Contributing Scenario

CS3 Material transfers	PROC8a
CS4 Rolling, Brushing	PROC10
CS5 Material transfers	PROC8a
CS6 Rolling, Brushing	PROC10

1.2 Conditions of use affecting exposure

1.2. CS1: Environment Contributing Scenario (ERC8c)

Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) (ERC8c)
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Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Technical and organisational conditions and measures

Control measures to prevent releases

	Water - minimum efficiency of: 0.015 %
--	--

1.2. CS2: Environment Contributing Scenario (ERC8f)

Environmental release categories	Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)
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Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Technical and organisational conditions and measures

Control measures to prevent releases

	Water - minimum efficiency of: 0.015 %
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1.2. CS3: 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

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers use up to 4 h/day

Frequency:

Covers use up to <= 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures

Local exhaust ventilation	Inhalation - minimum efficiency of: 80 %
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Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection

Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 95 %
Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 98 %
Wear suitable coveralls to prevent exposure to the skin.	
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. 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

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers use up to 4 h/day

Frequency:

Covers use up to <= 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures

Local exhaust ventilation	Inhalation - minimum efficiency of: 80 %
---------------------------	--

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

Personal protection

Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 95 %
Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 98 %
Wear suitable coveralls to prevent exposure to the skin.	
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. CS5: 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

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers use up to 1 h

Frequency:

Covers use up to <= 240 days per year

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

Personal protection

Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 98 %
Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 98 %
Wear suitable coveralls to prevent exposure to the skin.	
Use suitable eye protection.	

Other conditions affecting worker exposure

Outdoor use

Professional use

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

1.2. CS6: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Process Categories Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers use up to 1 h

Frequency:

Covers use up to <= 240 days per year

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

Personal protection

Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 98 %
Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 98 %
Wear suitable coveralls to prevent exposure to the skin.	
Use suitable eye protection.	

Other conditions affecting worker exposure

Outdoor use

Professional use

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 (ERC8c)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.0004855 mg/L	N/A	< 0.01
freshwater sediment	0.047 mg/kg dry weight	N/A	< 0.01
marine water	4.85E-05 mg/L	N/A	< 0.01
marine sediment	0.005 mg/kg dry weight	N/A	< 0.01
marine water	4.85E-05 mg/L	N/A	< 0.01
Sewage treatment plant	1.48E-05 mg/L	N/A	< 0.01
Agricultural soil	0.017 mg/kg dry weight	N/A	< 0.01
Man via environment - Oral	0.000188 mg/kg bw/day	N/A	< 0.01

1.3. CS2: Environment Contributing Scenario (ERC8f)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.000487 mg/L	N/A	< 0.01
freshwater sediment	0.047 mg/kg dry weight	N/A	< 0.01
marine water	4.815E-05 mg/L	N/A	< 0.01
marine sediment	0.005 mg/kg dry weight	N/A	< 0.01
Sewage treatment plant	2.96E-05 mg/L	N/A	< 0.01
Agricultural soil	0.017 mg/kg dry weight	N/A	= 0.015
Man via environment - Oral	0.0001193 mg/kg bw/day	N/A	< 0.01

1.3. CS3: Worker Contributing Scenario: Material transfers (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal	13.714 mg/kg bw/day	N/A	0.274
inhalative	106.438 mg/m ³	N/A	N/A

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal	27.429 mg/kg bw/day	N/A	0.549
inhalative	106.438 mg/m ³	N/A	N/A

1.3. CS5: Worker Contributing Scenario: Material transfers (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal	13.714 mg/kg bw/day	N/A	0.274
inhalative	24.835 mg/m ³	N/A	0.497

1.3. CS6: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal	27.429 mg/kg bw/day	N/A	0.549
inhalative	24.835 mg/m ³	N/A	0.497

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

Guidance to check compliance with the exposure scenario:

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



Exposure Scenario

Polyoxpropylenediamine

Exposure Scenario, 17/06/2021

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

Table of contents

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

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

1.1 TITLE SECTION

Exposure Scenario name	Use in coatings - Use in rigid foams, coatings, adhesives and sealants - Waterproofing agent
Date - Version	17/06/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Fillers, putties, plasters, modelling clay (PC9b) - Polymer preparations and compounds (PC32)

Environment Contributing Scenario

CS1	ERC8c
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Worker Contributing Scenario

CS2 Rolling, Brushing	PROC10
CS3 Mixing operations - Manual	PROC19

1.2 Conditions of use affecting exposure

1.2. CS1: Environment Contributing Scenario (ERC8c)

Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) (ERC8c)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

= 90 Pa

Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

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

Emission days: 365 days per year

Technical and organisational conditions and measures

Control measures to prevent releases

Municipal sewage treatment plant is assumed.	Water - minimum efficiency of: = 1.5 %
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Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant

STP effluent (m³/day): 2000

Other conditions affecting environmental exposure

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

Receiving surface water flow: 18000 m³/day

Indoor use

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

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

Dermal - minimum efficiency of: = 95 %

Other conditions affecting worker exposure

Indoor use
Professional use

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

1.3 Exposure estimation and reference to its source

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

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

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

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

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

Guidance to check compliance with the exposure scenario:

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



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Environment Contributing Scenario

CS1	ERC8c
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Worker Contributing Scenario

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Liquid

Vapour pressure:

= 90 Pa

Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

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

Emission days: 365 days per year

Technical and organisational conditions and measures

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Municipal sewage treatment plant is assumed.	Water - minimum efficiency of: = 1.5 %
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Wear suitable respiratory protection.
Wear suitable face shield.

Dermal - minimum efficiency of: = 95 %

Other conditions affecting worker exposure

Indoor use
Professional use

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

1.3 Exposure estimation and reference to its source

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