

Safety Data Sheet

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

CEMENTORESINA 1 (A)

Date of first edition: 11/11/2021

Safety Data Sheet dated 30/01/2026

version 6

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

1.1. Product identifier

Mixture identification:

Trade name: CEMENTORESINA 1 (A)

Trade code: 001052029

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

Recommended use: resin

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

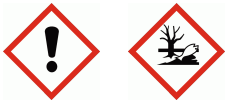
Ireland Emergency medical information: (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.

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 2 Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Hazard pictograms and Signal Word



Warning

Hazard statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P102 Keep out of reach of children.

- P273

Avoid release to the environment.
- 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

[[2-ethylhexyl]oxy]methyl]oxirane

Quartz

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

1,3-Propanediol, 2-(hydroxymethyl)-2-methyl-, polymer with 2-(chloromethyl)oxirane

Reaction products of 2,2-dimethylpropane-1,3-diol with 1-chloro-2,3-epoxypropane

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

4-morpholinecarbaldehyde

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

None.

2.3. Other hazards

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

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

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: CEMENTORESINA 1 (A)

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

Qty	Name	Ident. Numb.	Classification	Registration Number
≥10-<20 %	bis-[4-(2,3-epoxipropoxy)phenyl]propane	CAS:1675-54-3 EC:216-823-5 Index:603-073-00-2	Eye Irrit. 2, H319; Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411, M-Chronic:1	01-2119456619-26
Specific Concentration Limits: C ≥ 5%: Eye Irrit. 2 H319 C ≥ 5%: Skin Irrit. 2 H315				
≥10-<20 %	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

≥5-<10 %	1,3-Propanediol, 2-(hydroxymethyl)-2-methyl-, polymer with 2-(chloromethyl)oxirane	CAS:68460-21-9 EC:688-271-7	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Aquatic Chronic 3, H412; Skin Sens. 1, H317	
≥3-<5 %	[[2-ethylhexyl)oxy]methyl]oxirane	CAS:2461-15-6 EC:219-553-6	Skin Irrit. 2, H315; Skin Sens. 1A, H317	01-2119962196-31
≥1-<3 %	Quartz	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	
≥0.5-<1 %	Reaction products of 2,2-dimethylpropane-1,3-diol with 1-chloro-2,3-epoxypropane	EC:701-333-0	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; Aquatic Chronic 3, H412	01-2120759332-55
≥0.5-<1 %	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
≥0.25-<0.3 %	4-morpholinecarbaldehyde	CAS:4394-85-8 EC:224-518-3	Skin Sens. 1B, H317	01-2119987993-12
<0.0015 %	methanol	CAS:67-56-1 EC:200-659-6 Index:603-001-00-X	Flam. Liq. 2, H225; STOT SE 1, H370; Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331	01-2119433307-44

Specific Concentration Limits:
C ≥ 10%: STOT SE 1 H370
3% ≤ C < 10%: STOT SE 2 H371

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
Limestone CAS: 1317-65-3	NATIONAL	BULGARIA	Long Term: 10 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	ESTONIA	Long Term: 10 mg/m ³ Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	ESTONIA	Long Term: 5 mg/m ³ Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	GREECE	Long Term: 10 mg/m ³ ΕΙΣΠΝ. Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	GREECE	Long Term: 5 mg/m ³ Αναπν. Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	SPAIN	Long Term: 10 mg/m ³ (1) inhalable aerosol

Source: LEP 2022

NATIONAL	HUNGARY	Long Term: 10 mg/m3 N Source: 5/2020. (II. 6.) ITM rendelet
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m3 Inhalable fraction Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m3 Respirable fraction Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
NATIONAL	BELGIUM	Long Term: 10 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	IRELAND	Long Term: 10 mg/m3 Source: 2021 Code of Practice
NATIONAL	IRELAND	Long Term: 4 mg/m3 Source: 2021 Code of Practice
NATIONAL	SWITZERLAND	Long Term: 3 mg/m3 (1) respirable aerosol Source: suva.ch/valeurs-limites
Calcium carbonate CAS: 471-34-1	NATIONAL HUNGARY	Long Term: 10 mg/m3 inhalable aerosol Source: 5/2020. (II. 6.) ITM
	NATIONAL IRELAND	Long Term: 10 mg/m3 Inhalable fraction Source: 2021 Code of Practice
	NATIONAL IRELAND	Long Term: 4 mg/m3 Respirable fraction Source: 2021 Code of Practice
	NATIONAL UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m3 inhalable aerosol Source: EH40/2005 Workplace exposure limits
	NATIONAL UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m3 respirable aerosol Source: EH40/2005 Workplace exposure limits
	NATIONAL CROATIA	Long Term: 10 mg/m3 U Source: NN 1/2021
	NATIONAL CROATIA	Long Term: 4 mg/m3 R Source: NN 1/2021
	NATIONAL FRANCE	Long Term: 10 mg/m3 Source: INRS outil65
	NATIONAL LATVIA	Long Term: 6 mg/m3 Source: KN325P1
	NATIONAL POLAND	Long Term: 10 mg/m3 4) Source: Dz.U. 2018 poz. 1286
	SUVA SWITZERLAND	Long Term: 3 mg/m3 TWA mg/m3: (a), Formel / Formal, NIOSH Source: suva.ch/valeurs-limites

Quartz
CAS: 14808-60-7

ACGIH		Long Term: 0.025 mg/m ³ (8h) R, A2 - Pulm fibrosis, lung cancer
NATIONAL	HUNGARY	Long Term: 0.1 mg/m ³ Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	IRELAND	Long Term: 0.1 mg/m ³ Respirable fraction Source: 2021 Code of Practice
NATIONAL	ITALY	Long Term: 0.1 mg/m ³ Polvere di silice cristallina respirabile (frazione inalabile). Rif:D.Lgs 81/2008 Source: D.lgs. 81/2008, Allegato XLIII
NATIONAL	SPAIN	Long Term: 0.3 mg/m ³ Respirable fraction Source: LEP 2022
NATIONAL	BELGIUM	Long Term: 0.1 mg/m ³ C Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	DENMARK	Long Term: 0.3 mg/m ³ alveolijae, liite 3 Source: BEK nr 2203 af 29/11/2021
NATIONAL	DENMARK	Long Term: 0.1 mg/m ³ EK Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 0.1 mg/m ³ 1, C Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 0.05 mg/m ³ alveolijae, liite 3 Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 0.1 mg/m ³ La VLEP s'applique à la fraction alvéolaire. Forme de silice cristalline. Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	LITHUANIA	Long Term: 0.1 mg/m ³ Žiūrėti 1 priedo 3 punktą. Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLANDS	Long Term: 0.075 mg/m ³ (2) Source: Arbeidsomstandighedenregeling - Lijst B1
NATIONAL	NORWAY	Long Term: 0.3 mg/m ³ K 7 Source: FOR-2021-06-28-2248
NATIONAL	NORWAY	Long Term: 0.05 mg/m ³ K G 7 21 Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 0.1 mg/m ³ 6) Source: Dz.U. 2018 poz. 1286
NATIONAL	SWEDEN	Long Term: 0.1 mg/m ³ C, M, 3 Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 0.15 mg/m ³ TWA mg/m ³ : (a), C1A, SSC, P, Cancpulm Silicose / Lugenkrebs Silikose, HSE NIOSH OSHA Source: suva.ch/valeurs-limites
EU		Long Term: 0.1 mg/m ³ Polvere di silice cristallina respirabile, frazione inalabile. (R), A2 - Pulm fibrosis, lung cancer. Directive 2017/2398
ACGIH		Long Term: 0.025 mg/m ³ (8h) R, A2 - Pulm fibrosis, lung cancer
NATIONAL	HUNGARY	Long Term: 0.1 mg/m ³ (8h) Respirable aerosol

Quartz
CAS: 14808-60-7

Source: 5/2020. (II. 6.) ITM rendelet

NATIONAL	IRELAND	Long Term: 0.1 mg/m3 (8h) Respirable fraction Source: 2021 Code of Practice
NATIONAL	ITALY	Long Term: 0.1 mg/m3 (8h) Polvere di silice cristallina respirabile (frazione inalabile). D.Lgs 81/2008 Source: D.lgs. 81/2008, Allegato XLIII
NATIONAL	SPAIN	Long Term: 0.05 mg/m3 (8h) Respirable fraction Source: LEP 2022
NATIONAL	CROATIA	Long Term: 0.1 mg/m3 Source: NN 1/2021
NATIONAL	AUSTRIA	Long Term: 0.05 mg/m3 MAK, III C, A Source: BGBl. II Nr. 156/2021
NATIONAL	BELGIUM	Long Term: 0.1 mg/m3 C Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	DENMARK	Long Term: 0.3 mg/m3 Source: BEK nr 2203 af 29/11/2021
NATIONAL	DENMARK	Long Term: 0.1 mg/m3 EK Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 0.1 mg/m3 1, C Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 0.05 mg/m3 alveolijae, liite 3 Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 0.1 mg/m3 La VLEP s'applique à la fraction alvéolaire. Forme de silice cristalline. Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	LITHUANIA	Long Term: 0.1 mg/m3 Žiūrėti 1 priedo 3 punktą. Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLANDS	Long Term: 0.075 mg/m3 (2) Source: Arbeidsomstandighedenregeling - Lijst B1
NATIONAL	NORWAY	Long Term: 0.3 mg/m3 K 7 Source: FOR-2021-06-28-2248
NATIONAL	NORWAY	Long Term: 0.05 mg/m3 K G 7 21 Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 0.1 mg/m3 6) Source: Dz.U. 2018 poz. 1286
NATIONAL	SWEDEN	Long Term: 0.1 mg/m3 C, M, 3 Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 0.15 mg/m3 TWA mg/m3: (a), C1A, SSC, P, Cancpulm Silicose / Lugenkrebs Silikose, HSE NIOSH OSHA Source: suva.ch/valeurs-limites
ACGIH		Long Term: 2.5 mg/m3 (8h) Finescale particles; R ; A3 - LRT irr, pneumoconiosis
NATIONAL	GERMANY	Long Term: 0.3 mg/m3; Short Term: 2.4 mg/m3 DFG; Long term and short term: excluding ultrafine particles; respirable fraction; multiplied by the material density; Source: TRGS900

NATIONAL	BELGIUM	Long Term: 10 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 10 mg/m ³ U Source: NN 1/2021
NATIONAL	CROATIA	Long Term: 4 mg/m ³ R Source: NN 1/2021
NATIONAL	IRELAND	Long Term: 10 mg/m ³ Source: 2021 Code of Practice
NATIONAL	IRELAND	Long Term: 4 mg/m ³ Source: 2021 Code of Practice
NATIONAL	ROMANIA	Long Term: 10 mg/m ³ ; Short Term: 15 mg/m ³ Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SPAIN	Long Term: 10 mg/m ³ Source: LEP 2022
NATIONAL	AUSTRIA	Long Term: 5 mg/m ³ ; Short Term: 10 mg/m ³ 60(Miw), 2x, MAK, A Source: BGBl. II Nr. 156/2021
NATIONAL	BULGARIA	Long Term: 10 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	DENMARK	Long Term: 6 mg/m ³ K Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 5 mg/m ³ Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FRANCE	Long Term: 10 mg/m ³ Cancérogène de catégorie 2 Source: INRS outil65
NATIONAL	GREECE	Long Term: 10 mg/m ³ εισπν. Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	GREECE	Long Term: 5 mg/m ³ αvapn. Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	LATVIA	Long Term: 10 mg/m ³ Source: KN325P1
NATIONAL	LITHUANIA	Long Term: 5 mg/m ³ 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	POLAND	Long Term: 10 mg/m ³ 4), 7) Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVAKIA	Long Term: 5 mg/m ³ Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 5 mg/m ³ 3 Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 3 mg/m ³ TWA mg/m ³ : (a), SSC, Formel / Formal, NIOSH Source: suva.ch/valeurs-limites
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)

Talc (Mg₃H₂(SiO₃)₄)
CAS: 14807-96-6

ACGIH		Long Term: 2 mg/m ³ (8h) Containing no asbestos fibers\$ E,R, A4 - Pulm fibrosis, pulm func
NATIONAL	HUNGARY	Long Term: 2 mg/m ³ Respirable aerosol Source: 5/2020. (II. 6.) ITM
NATIONAL	LATVIA	Long Term: 4 mg/m ³ Source: KN325P1
NATIONAL	BELGIUM	Long Term: 2 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 1 mg/m ³ R Source: NN 1/2021
NATIONAL	IRELAND	Long Term: 10 mg/m ³ Source: 2021 Code of Practice
NATIONAL	IRELAND	Long Term: 0.8 mg/m ³ Source: 2021 Code of Practice
NATIONAL	ROMANIA	Long Term: 2 mg/m ³ fracțiune respirabilă Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SPAIN	Long Term: 2 mg/m ³ d, e Source: LEP 2022
NATIONAL	AUSTRIA	Long Term: 2 mg/m ³ MAK, A Source: BGBl. II Nr. 156/2021
NATIONAL	DENMARK	0, 3 fiber/cm ³ , K Source: BEK nr 2203 af 29/11/2021
NATIONAL	FINLAND	8h: 0.5 kuitua/cm ³ Source: HTP-ARVOT 2020
NATIONAL	FINLAND	Long Term: 2 mg/m ³ hengittyvä pöly Source: HTP-ARVOT 2020
NATIONAL	FINLAND	Long Term: 1 mg/m ³ alveolijae Source: HTP-ARVOT 2020
NATIONAL	GREECE	Long Term: 10 mg/m ³ εισπν. Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	GREECE	Long Term: 2 mg/m ³ αvapn. Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	NETHERLAND S	Long Term: 0.25 mg/m ³ Source: Arbeidsomstandighedenregeling - Lijst A
NATIONAL	POLAND	Long Term: 4 mg/m ³ 4) Source: Dz.U. 2018 poz. 1286
NATIONAL	POLAND	Long Term: 1 mg/m ³ 6), 18) Source: Dz.U. 2018 poz. 1286
NATIONAL	SWEDEN	Long Term: 2 mg/m ³ 3 Source: AFS 2021:3
NATIONAL	SWEDEN	Long Term: 1 mg/m ³ 3 Source: AFS 2021:3
SUVA	SWITZERLAN D	Long Term: 3 mg/m ³ TWA mg/m ³ : (a), SSC, Formel / Formal, OSHA Source: suva.ch/valeurs-limites

WEL-EH40 UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND Long Term: 1 mg/m³
Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)

Carbon black
CAS: 1333-86-4

ACGIH Long Term: 3 mg/m³ (8h)
I, A3 - Bronchitis

NATIONAL SWEDEN Long Term: 3 mg/m³
Source: AFS 2021:3

NATIONAL BELGIUM Long Term: 3 mg/m³
Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1

NATIONAL CROATIA Long Term: 3.5 mg/m³; Short Term: 7 mg/m³
Source: NN 1/2021

NATIONAL IRELAND Long Term: 3 mg/m³
I
Source: 2021 Code of Practice

NATIONAL SPAIN Long Term: 3.5 mg/m³
Source: LEP 2022

NATIONAL DENMARK Long Term: 3.5 mg/m³
K
Source: BEK nr 2203 af 29/11/2021

NATIONAL FINLAND Long Term: 3.5 mg/m³; Short Term: 7 mg/m³
Source: HTP-ARVOT 2020

NATIONAL FRANCE Long Term: 3.5 mg/m³
Source: INRS outil65

NATIONAL GREECE Long Term: 3.5 mg/m³; Short Term: 7 mg/m³
Source: ΦΕΚ 94/Α` 13.5.1999

NATIONAL HUNGARY Long Term: 3 mg/m³
belélegezhető koncentráció
Source: 5/2020. (II. 6.) ITM rendelet

NATIONAL NORWAY Long Term: 3.5 mg/m³
Source: FOR-2021-06-28-2248

NATIONAL POLAND Long Term: 4 mg/m³
4)
Source: Dz.U. 2018 poz. 1286

WEL-EH40 UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND Long Term: 3.5 mg/m³; Short Term: 7 mg/m³
Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)

methanol
CAS: 67-56-1

ACGIH Long Term: 200 ppm (8h); Short Term: 250 ppm
Skin, BEI - Headache, eye dam, dizziness, nausea

NATIONAL AUSTRIA Long Term: 260 mg/m³ - 200 ppm; Short Term: 1040 mg/m³ - 800 ppm
15(Miw), 4x, MAK, H
Source: BGBl. II Nr. 156/2021

NATIONAL BULGARIA Long Term: 260 mg/m³ - 200 ppm
Кожа
Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.

NATIONAL CZECHIA Long Term: 250 mg/m³; Short Term: Ceiling - 1000 mg/m³
D, B
Source: Nařízení vlády č. 361-2007 Sb

NATIONAL DENMARK Long Term: 260 mg/m³ - 200 ppm
EH
Source: BEK nr 2203 af 29/11/2021

NATIONAL ESTONIA Long Term: 250 mg/m³ - 200 ppm; Short Term: 350 mg/m³ - 250 ppm
A
Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105

NATIONAL	FINLAND	Long Term: 270 mg/m ³ - 200 ppm; Short Term: 330 mg/m ³ - 250 ppm iho Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1300 mg/m ³ - 1000 ppm Risque de pénétration percutanée Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	GREECE	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 325 mg/m ³ - 250 ppm Δ Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	HUNGARY	Long Term: 260 mg/m ³ b, i, BEM, EU2, R+T Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LITHUANIA	Long Term: 260 mg/m ³ - 200 ppm O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLANDS	Long Term: 133 mg/m ³ H Source: Arbeidsomstandighedenregeling - Lijst A
NATIONAL	NORWAY	Long Term: 130 mg/m ³ - 100 ppm H E Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 100 mg/m ³ ; Short Term: 300 mg/m ³ skóra Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVAKIA	Long Term: 260 mg/m ³ - 200 ppm K, 7) Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 250 mg/m ³ - 200 ppm; Short Term: 350 mg/m ³ - 250 ppm H, V Source: AFS 2021:3
SUVA	SWITZERLAND	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 520 mg/m ³ - 400 ppm R/H, SSC, B, SNC / ZNS, INRS NIOSH Source: suva.ch/valeurs-limites
WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 266 mg/m ³ - 200 ppm; Short Term: 333 mg/m ³ - 250 ppm Sk Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
NATIONAL	BELGIUM	Long Term: 266 mg/m ³ - 200 ppm; Short Term: 333 mg/m ³ - 250 ppm D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 260 mg/m ³ - 200 ppm koža Source: 2006/15/EZ
NATIONAL	CYPRUS	Long Term: 260 mg/m ³ - 200 ppm δέρμα Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
NATIONAL	GERMANY	Long Term: 130 mg/m ³ - 100 ppm DFG, EU, H, Y, 2(II) Source: TRGS 900
NATIONAL	IRELAND	Long Term: 260 mg/m ³ - 200 ppm Sk, IOELV Source: 2021 Code of Practice
NATIONAL	ITALY	Long Term: 260 mg/m ³ - 200 ppm Cute Source: D.lgs. 81/2008, Allegato XXXVIII
NATIONAL	LATVIA	Long Term: 260 mg/m ³ - 200 ppm Āda Source: KN325P1

NATIONAL	LUXEMBOURG	Long Term: 260 mg/m ³ - 200 ppm Peau Source: Mémorial A n.226 du 22 mars 2021
NATIONAL	MALTA	Long Term: 260 mg/m ³ - 200 ppm skin Source: S.L.424.24
NATIONAL	PORTUGAL	Long Term: 260 mg/m ³ - 200 ppm Cutânea Source: Decreto-Lei n.º 1/2021
NATIONAL	ROMANIA	Long Term: 260 mg/m ³ - 200 ppm P, Dir. 2006/15 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SLOVENIA	Long Term: 260 mg/m ³ - 200 ppm; Short Term: 1040 mg/m ³ - 800 ppm K, Y, BAT, EU2 Source: UL št. 72, 11. 5. 2021
NATIONAL	SPAIN	Long Term: 266 mg/m ³ - 200 ppm vía dérmica, VLB®, VLI, r Source: LEP 2022
EU		Long Term: 260 mg/m ³ - 200 ppm (8h) Skin

Biological limit values

methanol
CAS: 67-56-1

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

Predicted No Effect Concentration (PNEC) values

bis-[4-(2,3-epoxipropoxy)phenyl]
propane
CAS: 1675-54-3

Exposure Route: Fresh Water; PNEC Limit: 0.006 mg/l

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

[[[2-ethylhexyl)oxy]methyl]oxirane
CAS: 2461-15-6

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.072 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 286.66 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 28.66 mg/kg
Exposure Route: Soil; PNEC Limit: 57.16 mg/kg

Reaction products of 2,2'- Exposure Route: Fresh Water; PNEC Limit: 0.047 mg/l

dimethylpropane-1,3-diol
with 1-chloro-2,3-
epoxypropane

Exposure Route: Marine water; PNEC Limit: 0.004 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 0.248 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 0.025 mg/kg
Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.47 mg/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: Fresh Water; PNEC Limit: 2.2 µg/l
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: 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: 20.8 mg/l

methanol
CAS: 67-56-1

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1540 mg/l
Exposure Route: Marine water; PNEC Limit: 2.08 mg/l
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 100 mg/l
Exposure Route: Freshwater sediments; PNEC Limit: 77 mg/kg
Exposure Route: Marine water sediments; PNEC Limit: 7.7 mg/kg
Exposure Route: Soil; PNEC Limit: 100 mg/kg

Derived No Effect Level (DNEL) values

bis-[4-(2,3-
epoxipropoxy)phenyl]
propane
CAS: 1675-54-3

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

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

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

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

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

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

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

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

[[2-ethylhexyl)oxy)methyl]oxirane
CAS: 2461-15-6

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

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

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4.17 mg/kg

Reaction products of 2,2-dimethylpropane-1,3-diol with 1-chloro-2,3-epoxypropane

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 3.29 mg/m³

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects
Worker Professional: 6.66 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

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

methanol
CAS: 67-56-1

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

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

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

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

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

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

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

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 $\geq 0,4\text{mm}$; breakthrough time $\geq 480\text{min}$.

Butyl rubber - IIR: thickness $\geq 0,4\text{mm}$; breakthrough time $\geq 480\text{min}$.

Respiratory protection:

N.A.

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: In compliance with the product description

Odour: Light

Odour threshold: N.A.

pH: Not Relevant

Kinematic viscosity: N.A.

Melting point/freezing point: N.A.

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

Flash point: > 100°C / 212°F

Lower and upper explosion limit: N.A.

Relative vapour density: N.A.

Vapour pressure: N.A.

Density and/or relative density: 1.50 g/cm³ (EN 1097-03)

Solubility in water: N.A.

Solubility in oil: N.A.

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

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Flammability: N.A.

Volatile Organic compounds - VOCs = 0.00 % ; 0.02 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:

bis-[4-(2,3-epoxipropoxy)phenyl]propane	a) acute toxicity	LD50 Oral Rabbit = 19800 mg/kg	
		LD50 Skin Rabbit > 20 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive	epoxy resin with an average molecular mass ≤ 700 d irritate skin of rabbits
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
	f) carcinogenicity	Genotoxicity Negative	Mouse, oral
		Carcinogenicity Oral Rat = 15 mg/kg	NOAEL
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		Carcinogenicity Skin Rat = 1 mg/kg	NOAEL
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 750 mg/kg	
	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
[[[2-(2,2,2-trifluoroethyl)oxirane]methyl]oxirane]	f) carcinogenicity	Genotoxicity Negative	Hamster oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 750 mg/kg	
	a) acute toxicity	LD50 Oral Rat = 5000 mg/kg	

ethylhexyl)oxy]methyl]
oxirane

LD50 Skin Rat = 2000 mg/kg

Quartz

a) acute toxicity

LD50 Oral > 2000 mg/kg

Reaction products of 2,2-
dimethylpropane-1,3-diol
with 1-chloro-2,3-
epoxypropane

a) acute toxicity

LD50 Skin Rat > 2000 mg/kg

LD50 Oral Rat 3595 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

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

methanol

a) acute toxicity

LD50 Oral Rat >= 2528 mg/kg

LC50 Inhalation = 43.68 mg/l 6h

Cat

LD50 Skin Rabbit = 17100 mg/kg

b) skin corrosion/irritation Skin Irritant Rabbit Negative

c) serious eye
damage/irritation Eye Irritant Rabbit No

d) respiratory or skin
sensitisation Skin Sensitization Guinea pig Negative

f) carcinogenicity Genotoxicity Negative

Mouse intraperitoneal route

Carcinogenicity Rat Negative

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

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

12.1. Toxicity

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

Eco-Toxicological Information:

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
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
[[[2-ethylhexyl)oxy)methyl]oxirane	CAS: 2461-15-6 - EINECS: 219-553-6	a) Aquatic acute toxicity : LC50 Fish Gold Fish = 5000 mg/L 96h a) Aquatic acute toxicity : EC50 Daphnia Daphnia Magna = 7.2 mg/L 48h
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
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
methanol	CAS: 67-56-1 - EINECS: 200-	a) Aquatic acute toxicity : LC50 Fish Lepomis macrochirus = 15400 mg/L 96h

- b) Aquatic chronic toxicity : NOEC Fish = 450 mg/L
a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna = 22200 mg/L 48h
b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 208 mg/L
a) Aquatic acute toxicity : EC50 Algae Selenastrum capricornutum = 22000 mg/L 96h OECD 201 Guideline.
d) Terrestrial toxicity : NOEC Worm Eisenia andrei = 10000 mg/kg
d) Terrestrial toxicity : NOEC Folsomia candida = 1000 mg/kg OECD Guideline 232

12.2. Persistence and degradability

Component	Persistence/Degradability:	Test	Value	Notes:
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
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
4-morpholinecarbaldehyde methanol	Readily biodegradable Readily biodegradable	Dissolved organic carbon	96.000	%; OECD 301 A

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
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-phenyleneoxymethylene)]bis(oxirane) and 2-(2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl)oxirane	Bioaccumulative	BCF - Bioconcentration factor	150.000	
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	Not bioaccumulative			
4-morpholinecarbaldehyde	Bioaccumulative	BCF - Bioconcentration factor	1.900	
methanol	Not bioaccumulative	BCF - Bioconcentration factor	< 10	

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):

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

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

SECTION 14: Transport information

14.1. UN number or ID number

3082

14.2. UN proper shipping name

ADR-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-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)

IATA-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (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)

IMDG-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (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)

14.3. Transport hazard class(es)

ADR-Class: 9

IATA-Class: 9

IMDG-Class: 9

14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III

IMDG-Packing group: III

14.5. Environmental hazards

Most important toxic component: 1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate
bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-A, S-F

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 9

ADR - Hazard identification number: 90

ADR-Special Provisions: 274 335 375 601

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

ADR Limited Quantities: 5 L

ADR Excepted Quantities: E1

Air (IATA):

IATA-Passenger Aircraft: 964

IATA-Cargo Aircraft: 964

IATA-Label: 9

IATA-Subsidiary hazards: -

IATA-Erg: 9L

IATA-Special Provisions: A97 A158 A197 A215

Sea (IMDG):

IMDG-Stowage and handling: Category A

IMDG-Segregation: -

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: 274 335 969

14.7. Maritime transport in bulk according to IMO instruments
N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)
Regulation (EU) n. 2023/707
Regulation (EU) n. 2023/1434 (ATP 19 CLP)
Regulation (EU) n. 2023/1435 (ATP 20 CLP)
Regulation (EU) n. 2024/197 (ATP 21 CLP)
Regulation (EU) n. 2020/878
Regulation (EC) nr 648/2004 (Detergents).
Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:
Restrictions related to the product: 3
Restrictions related to the substances contained: 40, 69, 75
Provisions related to directive EU 2012/18 (Seveso III):

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

Explosives precursors – Regulation 2019/1148

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

German Water Hazard Class.
Class 1: slightly hazardous for water.
German Lagerklasse according to TRGS 510:
LGK 10

SVHC Substances:
No SVHC substances present in concentration >= 0.1%

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.
Substances for which a Chemical Safety Assessment has been carried out:
bis-[4-(2,3-epoxipropoxy)phenyl]propane
1,3-Propanediol, 2-(hydroxymethyl)-2-methyl-, polymer with 2-(chloromethyl)oxirane
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.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H361	Suspected of damaging fertility or the unborn child in contact with skin and if swallowed.
H370	Causes damage to organs.
H372	Causes 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
3.1/3/Dermal	Acute Tox. 3	Acute toxicity (dermal), Category 3
3.1/3/Inhal	Acute Tox. 3	Acute toxicity (inhalation), Category 3
3.1/3/Oral	Acute Tox. 3	Acute toxicity (oral), Category 3
3.2/2	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
3.8/1	STOT SE 1	Specific target organ toxicity — single exposure, Category 1
3.9/1	STOT RE 1	Specific target organ toxicity — repeated exposure, Category 1
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

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

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

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

Main bibliographic sources:

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

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

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

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

This MSDS cancels and replaces any preceding release.

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

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

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

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor
 BEI: Biological Exposure Index
 BOD: Biochemical Oxygen Demand
 CAS: Chemical Abstracts Service (division of the American Chemical Society).
 CAV: Poison Center
 CE: European Community
 CLP: Classification, Labeling, Packaging.
 CMR: Carcinogenic, Mutagenic and Reprotoxic
 COD: Chemical Oxygen Demand
 COV: Volatile Organic Compound
 CSA: Chemical Safety Assessment
 CSR: Chemical Safety Report
 DMEL: Derived Minimal Effect Level
 DNEL: Derived No Effect Level.
 DPD: Dangerous Preparations Directive
 DSD: Dangerous Substances Directive
 EC50: Half Maximal Effective Concentration
 ECHA: European Chemicals Agency
 EINECS: European Inventory of Existing Commercial Chemical Substances.
 ES: Exposure Scenario
 GefStoffVO: Ordinance on Hazardous Substances, Germany.
 GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
 IARC: International Agency for Research on Cancer
 IATA: International Air Transport Association.
 IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
 IC50: half maximal inhibitory concentration
 ICAO: International Civil Aviation Organization.
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
 IMDG: International Maritime Code for Dangerous Goods.
 INCI: International Nomenclature of Cosmetic Ingredients.
 IRCCS: Scientific Institute for Research, Hospitalization and Health Care
 KAFH: Keep Away From Heat
 KSt: Explosion coefficient.
 LC50: Lethal concentration, for 50 percent of test population.
 LD50: Lethal dose, for 50 percent of test population.
 LDLo: Leathal Dose Low
 N.A.: Not Applicable
 N/A: Not Applicable
 N/D: Not defined/ Not available
 NA: Not available
 NIOSH: National Institute for Occupational Safety and Health
 NOAEL: No Observed Adverse Effect Level
 OSHA: Occupational Safety and Health Administration
 PBT: Persistent, Bioaccumulative and Toxic
 PGK: Packaging Instruction
 PNEC: Predicted No Effect Concentration.
 PSG: Passengers
 RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
 STEL: Short Term Exposure limit.
 STOT: Specific Target Organ Toxicity.
 TLV: Threshold Limiting Value.
 TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
 vPvB: Very Persistent, Very Bioaccumulative.
 WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information

- SECTION 12: Ecological information
- SECTION 15: Regulatory information
- SECTION 16: Other information

Exposure Scenario

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

Table of contents

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)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Vapour pressure: Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Emission days: 365 days per year			
<i>Technical and organisational conditions and measures</i>			
Control measures to prevent releases			
		Air - minimum efficiency of: 15 % Water - minimum efficiency of: 1 %	
<i>Conditions and measures related to sewage treatment plant</i>			
STP type: Municipal Sewage Treatment Plant Water - minimum efficiency of: = 88.9 %			
STP effluent (m³/day): 2000			
<i>Other conditions affecting environmental exposure</i>			
Local marine water dilution factor: 100 Local freshwater dilution factor: 10 Receiving surface water flow: 18000 m³/day Indoor use			
1.2. CS2: Worker Contributing Scenario: Material transfers (PROC8a)			

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)	
<i>Product (article) characteristics</i>		
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 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to 480 min		
Frequency: Covers use up to 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Ensure operatives are trained to minimise exposures.		
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>		
Personal protection		
Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.		Dermal - minimum efficiency of: = 90 %
Wear suitable face shield. Wear suitable coveralls to prevent exposure to the skin.		
<i>Other conditions affecting worker exposure</i>		
Indoor use Professional use		
<i>Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.</i>		
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)	
<i>Product (article) characteristics</i>		
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 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to 480 min		
Frequency: Covers use up to 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures		

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.
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		
Worker Contributing Scenario			
CS2 Material transfers	PROC8a		
CS3 Rolling, Brushing	PROC10		
CS4 Roller, spreader, flow application	PROC11		
CS5 Mixing operations - Manual	PROC19		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c, ERC8f)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid, vapour pressure < 0,5 kPa at STP			
Concentration of substance in product: Covers percentage substance in the product up to 100 %.			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Amounts used: Daily amount per site = 175 kg/day			
Release type: Continuous release			
Emission days: 365 days per year			
<i>Technical and organisational conditions and measures</i>			
Control measures to prevent releases Provide onsite wastewater removal efficiency of ³ (%):			
<i>Conditions and measures related to sewage treatment plant</i>			
STP type: Municipal Sewage Treatment Plant			
STP effluent (m³/day): 2			
<i>Conditions and measures related to treatment of waste (including article waste)</i>			
Waste treatment Dispose of waste cans and containers according to local regulations.			
<i>Other conditions affecting environmental exposure</i>			

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

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

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

Physical form of product:

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Technical and organisational measures

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

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

Personal protection

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

Other conditions affecting worker exposure

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

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

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

Physical form of product:

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Technical and organisational measures

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

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

Personal protection

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

Other conditions affecting worker exposure

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

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

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

Physical form of product:

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

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

Covers daily exposures up to 8 hours

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

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

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

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

Wear suitable face shield.

Wear an impervious suit.

Wear a respirator conforming to EN140.

Other conditions affecting worker exposure

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

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

Manual activities involving hand contact (PROC19)

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

Liquid, vapour pressure < 0,5 kPa at STP

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

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

Covers daily exposures up to 8 hours

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

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

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

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

Other conditions affecting worker exposure

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

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

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

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

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

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

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

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

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

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

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

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

Guidance to check compliance with the exposure scenario:

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

Exposure Scenario

1,3-Propanediol, 2-(hydroxymethyl)-2-methyl-, polymer with 2-(chloromethyl)oxirane

Exposure Scenario, 04/11/2021

Substance identity	
	1,3-Propanediol, 2-(hydroxymethyl)-2-methyl-, polymer with 2-(chloromethyl)oxirane
CAS No.	68460-21-9
EINECS No.	688-271-7

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1. **ES 1** Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a)

1. ES 1		Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a)	
1.1 TITLE SECTION			
Exposure Scenario name	Professional application of coatings and inks		
Date - Version	04/11/2021 - 1.0		
Life Cycle Stage	Widespread use by professional workers		
Main user group	Professional uses		
Sector(s) of use	Professional uses (SU22)		
Product Categories	Coatings and paints, thinners, paint removers (PC9a)		
Environment Contributing Scenario			
CS1	ERC8c - ERC8f		
Worker Contributing Scenario			
CS2 Rolling, Brushing	PROC10		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c, ERC8f)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Concentration of substance in product: Covers percentage substance in the product up to 5 %.			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Amounts used: Amount per use < 0.08 kg			
1.2. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)			
Process Categories	Roller application or brushing (PROC10)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Concentration of substance in product: Covers percentage substance in the product up to 5 %.			
<i>Amount used, frequency and duration of use/exposure</i>			
Amounts used: Amount per use < 0.08 kg			
Duration: Covers daily exposures up to 8 hours			
<i>Technical and organisational conditions and measures</i>			
Technical and organisational measures			
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).		Inhalation - minimum efficiency of: 30 %	

Local exhaust ventilation	Inhalation - minimum efficiency of: 90 %
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.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

Professional use

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

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

1.3 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	5.11E-05 mg/L	N/A	0.011
freshwater sediment	0.000275 mg/kg dry weight	N/A	0.011
marine water	5.05E-06 mg/L	N/A	0.011
marine sediment	2.72E-05 mg/kg dry weight	N/A	0.011
Sewage treatment plant	0.000206 mg/kg dry weight	N/A	< 0.01
Agricultural soil	4.12E-05 mg/kg dry weight	N/A	0.022

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.25 mg/m ³	ECETOC TRA worker v2.0	0.214
inhalative, local, long-term	0.25 mg/m ³	ECETOC TRA worker v2.0	N/A
inhalative, local, short-term	18.9 mg/m ³	ECETOC TRA worker v2.0	N/A
dermal, systemic, long-term	0.25 mg/kg bw/day	ECETOC TRA worker v2.0	0.373
dermal, local, long-term	0.2 mg/kg bw/day	ECETOC TRA worker v2.0	N/A
dermal, local, short-term	0.2 mg/kg bw/day	ECETOC TRA worker v2.0	N/A
combined routes, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.587

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

CEMENTORESINA 1 (B)

Date of first edition: 7/26/2021

Safety Data Sheet dated 30/01/2026

version 4

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

1.1. Product identifier

Mixture identification:

Trade name: CEMENTORESINA 1 (B)

Trade code: S100B0353 11

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

Recommended use: hardener

Uses advised against: All uses other than recommended ones

1.3. Details of the supplier of the safety data sheet

Company: KERAKOLL S.p.A.

Via dell'Artigianato, 9

41049 Sassuolo (MODENA) - ITALY

Tel.+39 0536 816511 Fax. +39 0536816581

safety@kerakoll.com

1.4. Emergency telephone number

European emergency phone number 112

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

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

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

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

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

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

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

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Hazard pictograms and Signal Word



Danger

Hazard statements

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

Precautionary statements

P102	Keep out of reach of children.
P273	Avoid release to the environment.
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

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

Polyoxpropylenediamine

1,3-Cyclohexanedimethanamine

2,2'-iminodiethylamine; diethylenetriamine

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

None.

2.3. Other hazards

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

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

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: CEMENTORESINA 1 (B)

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

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

≥1-<3 %	Quartz	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	
≥0.3-<0.5 %	2,6-di-tert-butyl-p-cresol	CAS:128-37-0 EC:204-881-4	Aquatic Chronic 1, H410; Aquatic Acute 1, H400, M-Acute:1, M-Chronic:1	01-2119555270-46/01-2119565113-46

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

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

In case of eyes contact:

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

In case of Ingestion:

- Give nothing to eat or drink.

In case of Inhalation:

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

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

Eye irritation

Eye damages

Skin Irritation

Erythema

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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

- Water.
- Carbon dioxide (CO₂).

Extinguishing media which must not be used for safety reasons:

- None in particular.

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

- Use suitable breathing apparatus .
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

- Wear personal protection equipment.
- Remove persons to safety.
- See protective measures under point 7 and 8.

For emergency responders:

- Wear personal protection equipment.

6.2. Environmental precautions

- Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
- Retain contaminated washing water and dispose it.
- In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
- Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

- Suitable material for taking up: absorbing material, organic, sand

Wash with plenty of water.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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

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

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

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

	OEL Type	Country	Occupational Exposure Limit
Calcium carbonate CAS: 471-34-1	NATIONAL	HUNGARY	Long Term: 10 mg/m3 inhalable aerosol Source: 5/2020. (II. 6.) ITM
	NATIONAL	IRELAND	Long Term: 10 mg/m3 Inhalable fraction Source: 2021 Code of Practice
	NATIONAL	IRELAND	Long Term: 4 mg/m3 Respirable fraction Source: 2021 Code of Practice
	NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m3 inhalable aerosol Source: EH40/2005 Workplace exposure limits
	NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m3 respirable aerosol Source: EH40/2005 Workplace exposure limits
	NATIONAL	CROATIA	Long Term: 10 mg/m3 U Source: NN 1/2021
	NATIONAL	CROATIA	Long Term: 4 mg/m3 R Source: NN 1/2021
	NATIONAL	FRANCE	Long Term: 10 mg/m3 Source: INRS outil65
	NATIONAL	LATVIA	Long Term: 6 mg/m3 Source: KN325P1
	NATIONAL	POLAND	Long Term: 10 mg/m3 4)

		Source: Dz.U. 2018 poz. 1286
Quartz CAS: 14808-60-7	SUVA SWITZERLAND	Long Term: 3 mg/m3 TWA mg/m3: (a), Formel / Formal, NIOSH Source: suva.ch/valeurs-limites
	ACGIH	Long Term: 0.025 mg/m3 (8h) R, A2 - Pulm fibrosis, lung cancer
	NATIONAL HUNGARY	Long Term: 0.1 mg/m3 Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL IRELAND	Long Term: 0.1 mg/m3 Respirable fraction Source: 2021 Code of Practice
	NATIONAL ITALY	Long Term: 0.1 mg/m3 Polvere di silice cristallina respirabile (frazione inalabile). Rif:D.Lgs 81/2008 Source: D.lgs. 81/2008, Allegato XLIII
	NATIONAL SPAIN	Long Term: 0.3 mg/m3 Respirable fraction Source: LEP 2022
	NATIONAL BELGIUM	Long Term: 0.1 mg/m3 C Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL DENMARK	Long Term: 0.3 mg/m3 alveolijae, liite 3 Source: BEK nr 2203 af 29/11/2021
	NATIONAL DENMARK	Long Term: 0.1 mg/m3 EK Source: BEK nr 2203 af 29/11/2021
	NATIONAL ESTONIA	Long Term: 0.1 mg/m3 1, C Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL FINLAND	Long Term: 0.05 mg/m3 alveolijae, liite 3 Source: HTP-ARVOT 2020
	NATIONAL FRANCE	Long Term: 0.1 mg/m3 La VLEP s'applique à la fraction alvéolaire. Forme de silice cristalline. Source: INRS outil65, article R. 4412-149 du Code du travail
	NATIONAL LITHUANIA	Long Term: 0.1 mg/m3 Žiūrėti 1 priedo 3 punktą. Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATIONAL NETHERLANDS	Long Term: 0.075 mg/m3 (2) Source: Arbeidsomstandighedenregeling - Lijst B1
	NATIONAL NORWAY	Long Term: 0.3 mg/m3 K 7 Source: FOR-2021-06-28-2248
	NATIONAL NORWAY	Long Term: 0.05 mg/m3 K G 7 21 Source: FOR-2021-06-28-2248
	NATIONAL POLAND	Long Term: 0.1 mg/m3 6) Source: Dz.U. 2018 poz. 1286
	NATIONAL SWEDEN	Long Term: 0.1 mg/m3 C, M, 3 Source: AFS 2021:3
	SUVA SWITZERLAND	Long Term: 0.15 mg/m3 TWA mg/m3: (a), C1A, SSC, P, Cancpulm Silicose / Lugenkrebs Silikose, HSE NIOSH OSHA Source: suva.ch/valeurs-limites
2,2'-iminodiethylamine; diethylenetriamine CAS: 111-40-0	ACGIH	Long Term: 1 ppm (8h) Skin - URT and eye irr

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

Quartz
CAS: 14808-60-7

Source: LEP 2022

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

2,6-di-tert-butyl-p-cresol CAS: 128-37-0	SUVA	SWITZERLAND	Long Term: 0.15 mg/m ³ TWA mg/m ³ : (a), C1A, SSC, P, Cancpulm Silicose / Lugenkrebs Silikose, HSE NIOSH OSHA Source: suva.ch/valeurs-limites
	ACGIH		Long Term: 2 mg/m ³ (8h) IFV, A4 - URT irr
	NATIONAL	BELGIUM	Long Term: 2 mg/m ³ Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	CROATIA	Long Term: 10 mg/m ³ Source: NN 1/2021
	NATIONAL	GERMANY	Long Term: 10 mg/m ³ DFG, Y, 11, E, 4 (II) Source: TRGS 900
	NATIONAL	IRELAND	Long Term: 2 mg/m ³ Source: 2021 Code of Practice
	NATIONAL	SLOVENIA	Long Term: 10 mg/m ³ ; Short Term: 40 mg/m ³ Y, (I) Source: UL št. 72, 11. 5. 2021
	NATIONAL	SPAIN	Long Term: 10 mg/m ³ Source: LEP 2022
	NATIONAL	AUSTRIA	Long Term: 10 mg/m ³ MAK Source: GKV, BGBl. II Nr. 156/2021
	NATIONAL	BULGARIA	Long Term: 10 mg/m ³ ; Short Term: 50 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	DENMARK	Long Term: 10 mg/m ³ Source: BEK nr 2203 af 29/11/2021
	NATIONAL	FINLAND	Long Term: 10 mg/m ³ ; Short Term: 20 mg/m ³ Source: HTP-ARVOT 2020
	NATIONAL	FRANCE	Long Term: 10 mg/m ³ Source: INRS outil65
	NATIONAL	GREECE	Long Term: 10 mg/m ³ Source: ΦΕΚ 94/Α` 13.5.1999
	SUVA	SWITZERLAND	Long Term: 10 mg/m ³ ; Short Term: 40 mg/m ³ TWA mg/m ³ : (i), C1#B, SSC, Foie / Leber, Pas de risque accru de cancer si la VME est respectée. La substance peut être présente sous forme de vapeur et d'aérosol en même temps / Kein erhöhtes Krebsrisiko bei Einhalten des MAK-Werts. Der Stoff kann gleichzeitig als Dampf und Aerosol vorliegen. Source: suva.ch/valeurs-limites
	WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)

Predicted No Effect Concentration (PNEC) values

1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether
CAS: 84144-79-6

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

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 660 µg/l

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

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

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

Polyoxpropylenediamine
CAS: 9046-10-0

Exposure Route: Fresh Water; PNEC Limit: 15 µg/l

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: 33.1 µg/l

1,3-Cyclohexanedimethanamine
 CAS: 2579-20-6

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 331 µg/l
 Exposure Route: Marine water; PNEC Limit: 3.31 µg/l
 Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 10 mg/l
 Exposure Route: Fresh Water; PNEC Limit: 73 µg/l

p-toluenesulphonic acid (containing a maximum of 5 % H₂SO₄)
 CAS: 6192-52-5

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 730 µg/l
 Exposure Route: Marine water; PNEC Limit: 1.3 µg/l
 Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 58 mg/l
 Exposure Route: Freshwater sediments; PNEC Limit: 57.7 µg/kg
 Exposure Route: Marine water sediments; PNEC Limit: 5.77 µg/kg
 Exposure Route: Soil; PNEC Limit: 16 µg/kg

2,2'-iminodiethylamine; diethylenetriamine
 CAS: 111-40-0

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 320 µg/l
 Exposure Route: Marine water; PNEC Limit: 56 µg/l
 Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 6 mg/l
 Exposure Route: Freshwater sediments; PNEC Limit: 1072 mg/kg
 Exposure Route: Marine water sediments; PNEC Limit: 107.2 mg/kg
 Exposure Route: Soil; PNEC Limit: 7.97 mg/kg

2,6-di-tert-butyl-p-cresol
 CAS: 128-37-0

Exposure Route: Fresh Water; PNEC Limit: 199 ng/L

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1.99 µg/l
 Exposure Route: Marine water; PNEC Limit: 19.9 ng/L
 Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 170 µg/l
 Exposure Route: Freshwater sediments; PNEC Limit: 99.6 µg/kg
 Exposure Route: Marine water sediments; PNEC Limit: 9.96 µg/kg
 Exposure Route: Soil; PNEC Limit: 47.69 µg/kg
 Exposure Route: Secondary poisoning; PNEC Limit: 8.33 mg/kg

Derived No Effect Level (DNEL) values

1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether
 CAS: 84144-79-6
 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
 Worker Professional: 2.35 mg/m³

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

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

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

1,3-Cyclohexanedimethanamine
 CAS: 2579-20-6
 Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects
 Worker Professional: 9.47 µg/m³

p-toluenesulphonic acid (containing a maximum of 5 % H₂SO₄)
CAS: 6192-52-5

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 53.6 mg/m³; Consumer: 8.7 mg/m³

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

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

2,2'-iminodiethylamine; diethylenetriamine
CAS: 111-40-0

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 15.4 mg/m³; Consumer: 4.6 mg/m³

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Professional: 91.1 mg/m³; Consumer: 25.5 mg/m³

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

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects
Worker Professional: 2.6 mg/m³

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

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

2,6-di-tert-butyl-p-cresol
CAS: 128-37-0

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 4.4 mg/m³; Consumer: 780 µg/m³

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

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

8.2. Exposure controls

Eye protection:

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:

Nitrile rubber .

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: Beige

Odour: Characteristic

Odour threshold: N.A.

pH: Not Relevant

Kinematic viscosity: N.A.

Melting point/freezing point: N.A.

Boiling point or initial boiling point and boiling range: 205 °C (401 °F)

Flash point: > 100°C / 212°F

Lower and upper explosion limit: N.A.

Relative vapour density: N.A.

Vapour pressure: N.A.

Density and/or relative density: 1.06 g/cm³ (EN 1097-03)

Solubility in water: Miscible

Solubility in oil: N.A.

Partition coefficient n-octanol/water (log value): N.A.
Auto-ignition temperature: N.A.
Decomposition temperature: N.A.
Flammability: N.A.
Volatile Organic compounds - VOCs = 2.09 % ; 22.19 g/l

Particle characteristics:

Particle size: N.A.

9.2. Other information

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

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

Toxicological Information of the Preparation

a) acute toxicity	The product is classified: Acute Tox. 4(H302)
b) skin corrosion/irritation	The product is classified: Skin Corr. 1C(H314) Skin Corrosive - Product has been tested with Corrositex - OECD 435 - In Vitro Membrane Barrier Test Method for Skin Corrosion. Results: >60 min. Corrosive sub-category 1C - PG III
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)
d) respiratory or skin sensitisation	The product is classified: Skin Sens. 1B(H317)
e) germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

1,2-Ethanediamine, N-(2- a) acute toxicity LD50 Oral Rat < 301 mg/kg
aminoethyl)-, reaction
products with glycidyl
tolyl ether

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

	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Skin Rat = 30 mg/kg	
1,3-Cyclohexanedimethanamine	a) acute toxicity	LD50 Oral Rat > 300 mg/kg	
		LD50 Skin Rabbit = 1700 mg/kg 24h	
	b) skin corrosion/irritation	Skin Corrosive Rabbit Positive	
	d) respiratory or skin sensitisation	Skin Sensitization Guineapig Negative	
	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 300 mg/kg	
p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)	a) acute toxicity	LD50 Oral Rat >= 1104 mg/kg	
		LC50 Inhalation Vapour Rat >= 50 mg/l 8h	
		LD50 Skin Rabbit > 2000 mg/kg	
	b) skin corrosion/irritation	Skin Corrosive Rabbit Positive 4h	
	c) serious eye damage/irritation	Eye Corrosive Rabbit Positive	
	d) respiratory or skin sensitisation	Skin Sensitization Guineapig Negative	
	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
		Carcinogenicity Negative	
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 1000 mg/kg	
2,2'-iminodiethylamine; diethylenetriamine	a) acute toxicity	ATE - Oral : 1.553 mg/kg bw	
		ATE - Dermal : 1.045 mg/kg bw	
		ATE - Inhalation (Dust/mist) : 0.07 mg/l	
		LD50 Oral Rat = 1.62 ml/Kg	
		LC50 Inhalation Dust Rat = 0.07 mg/l 4h	No mortality
		LD50 Skin Rabbit = 1.09 ml/Kg	
	b) skin corrosion/irritation	Skin Corrosive Rabbit Positive	
	c) serious eye damage/irritation	Eye Corrosive Rabbit Positive	
	d) respiratory or skin sensitisation	Skin Sensitization Positive	Mouse
		Respiratory Sensitization Negative	Mouse
	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
		Carcinogenicity Skin Negative	
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 30 mg/kg	
Quartz	a) acute toxicity	LD50 Oral > 2000 mg/kg	
2,6-di-tert-butyl-p-cresol	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg 24h	
		LD50 Skin Rat > 2000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	

f) carcinogenicity	Genotoxicity Negative	Mouse intraperitoneal route
	Carcinogenicity Negative	
g) reproductive toxicity	Reproductive Toxicity Oral Rat = 100 mg/kg	

11.2. Information on other hazards

Endocrine disrupting properties:

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

SECTION 12: Ecological information

12.1. Toxicity

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

Eco-Toxicological Information:

Very toxic to aquatic organisms.

Very toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

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

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
1,2-Ethanediamine, N-(2-aminoethyl)-, reaction products with glycidyl tolyl ether	CAS: 84144-79-6 - EINECS: 282-199-6	a) Aquatic acute toxicity : LC50 Fish = 660 µg/L 96h OECD Guideline 203 a) Aquatic acute toxicity : LC50 Daphnia = 14 mg/L 24h OECD Guideline 202 a) Aquatic acute toxicity : EC50 Algae = 0.17 mg/L 72h OECD Guideline 201 a) Aquatic acute toxicity : EC50 Sludge = 66 mg/L 3h OECD Guideline 209
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
1,3-Cyclohexanedimethanamine	CAS: 2579-20-6 - EINECS: 219-941-5	a) Aquatic acute toxicity : LC50 Fish Golden orfe = 130 mg/L 96h OECD test guideline 203 a) Aquatic acute toxicity : LC50 Daphnia Daphnia magna = 33.1 mg/L 48h OECD test guideline 202 a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 56.7 mg/L 72h OECD test guideline 201 a) Aquatic acute toxicity : EC50 microorganisms > 1000 mg/L
p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)	CAS: 6192-52-5 - EINECS: 203-180-0 - INDEX: 016-030-00-2	a) Aquatic acute toxicity : LC50 Fish Goldorfen = 325 mg/L 96h OECD Guideline 203 a) Aquatic acute toxicity : LC50 Daphnia Daphnia Magna = 100 mg/L 48h OECD 202 a) Aquatic acute toxicity : NOEC Algae Selenastrum capricornutum = 44.8 mg/L 72h OECD Guideline 201 a) Aquatic acute toxicity : NOEC Sludge activated sludge = 580 mg/L 3h
2,2'-iminodiethylamine; diethylenetriamine	CAS: 111-40-0 - EINECS: 203-865-4 - INDEX:	a) Aquatic acute toxicity : LC50 Fish Poecilia reticulata = 430 mg/L 96h

b) Aquatic chronic toxicity : NOEC Fish *Gasterosteus aculeatus* = 10 mg/L - 28days

a) Aquatic acute toxicity : LC50 *Daphnia magna* = 32 mg/L 48h

b) Aquatic chronic toxicity : NOEC *Daphnia magna* = 5.6 mg/L - 21days

a) Aquatic acute toxicity : EC50 Algae *Pseudokirchnerella subcapitata* = 1164 mg/L 72h OECD 201

c) Bacteria toxicity : EC50 nitrifying bacteria = 32.7 mg/L - 17h

d) Terrestrial toxicity : LC50 Worm = 797 mg/kg

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

CAS: 128-37-0 -
EINECS: 204-881-4

a) Aquatic acute toxicity : LC50 Fish *Danio rerio* > 0.57 mg/L 96h

b) Aquatic chronic toxicity : EC10 Fish *Oryzias latipes* = 0.053 mg/L „OECD Guideline 210 (Fish, Early-Life Stage Toxicity Test)

a) Aquatic acute toxicity : EC50 *Daphnia magna* = 0.48 mg/L 48h OECD Guideline 202 (*Daphnia* sp. Acute Immobilisation Test)

a) Aquatic acute toxicity : EC50 Algae > 0.4 mg/L 72h

c) Bacteria toxicity : EC50 *Tetrahymena pyriformis* = 1.7 mg/L

12.2. Persistence and degradability

Component	Persistence/Degradability:	Test	Value	Notes:
Polyoxpropylenediamine	Non-readily biodegradable	CO2 production	9.800	%; OECD Guideline 301B
1,3-Cyclohexanedimethanamine	Non-readily biodegradable	CO2 production		OECD Guideline No 301 B.
p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)	Readily biodegradable	CO2 production		
2,2'-iminodiethylamine; diethylenetriamine	Readily biodegradable		87.000	21days
2,6-di-tert-butyl-p-cresol	Non-readily biodegradable	Biochemical oxygen demand	4.500	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)	Not bioaccumulative			
2,2'-iminodiethylamine; diethylenetriamine	Bioaccumulative	BCF - Bioconcentration factor	6.300	
2,6-di-tert-butyl-p-cresol	Bioaccumulative	BCF - Bioconcentration factor	598.400 L/kg ww	

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

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

12.6. Endocrine disrupting properties

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

12.7. Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force. Disposal through discharge into wastewater is not permitted

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

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

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

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

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

SECTION 14: Transport information

14.1. UN number or ID number

2735

14.2. UN proper shipping name

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

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

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

14.3. Transport hazard class(es)

ADR-Class: 8

IATA-Class: 8

IMDG-Class: 8

14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III

IMDG-Packing group: III

14.5. Environmental hazards

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

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-A, S-B

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 8

ADR - Hazard identification number: 80

ADR-Special Provisions: 274

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

ADR Limited Quantities: 5 L

ADR Excepted Quantities: E1

Air (IATA):

IATA-Passenger Aircraft: 852

IATA-Cargo Aircraft: 856

IATA-Label: 8

IATA-Subsidiary hazards: -

IATA-Erg: 8L

IATA-Special Provisions: A3 A803

Sea (IMDG):

IMDG-Stowage and handling: Category A

IMDG-Segregation: SG35 SGG18

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: 223 274

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

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

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

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

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

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

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

Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)
Regulation (EU) n. 2023/707
Regulation (EU) n. 2023/1434 (ATP 19 CLP)
Regulation (EU) n. 2023/1435 (ATP 20 CLP)
Regulation (EU) n. 2024/197 (ATP 21 CLP)
Regulation (EU) n. 2020/878
Regulation (EC) nr 648/2004 (Detergents).
Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:
Restrictions related to the product: 3
Restrictions related to the substances contained: 75
Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
Product belongs to category: E1	100	200

Explosives precursors – Regulation 2019/1148

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

No substances listed
German Water Hazard Class.
Class 2: hazardous for water.

German Lagerklasse according to TRGS 510:
LGK 8A

SVHC Substances:
No SVHC substances present in concentration >= 0.1%

15.2. Chemical safety assessment
A Chemical Safety Assessment has been carried out for the mixture.
Substances for which a Chemical Safety Assessment has been carried out:
Polyoxpropylenediamine
1,3-Cyclohexanedimethanamine
2,6-di-tert-butyl-p-cresol

SECTION 16: Other information

Code	Description
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.

H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
3.1/2/Inhal	Acute Tox. 2	Acute toxicity (inhalation), Category 2
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4
3.2/1A	Skin Corr. 1A	Skin corrosion, Category 1A
3.2/1B	Skin Corr. 1B	Skin corrosion, Category 1B
3.2/1C	Skin Corr. 1C	Skin corrosion, Category 1C
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.4.2/1B	Skin Sens. 1B	Skin Sensitisation, Category 1B
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
3.9/1	STOT RE 1	Specific target organ toxicity — repeated exposure, Category 1
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

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

Classification according to Regulation (EC) Nr. 1272/2008 Classification procedure

Acute Tox. 4, H302	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1B, H317	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method
Skin Corr. 1C, H314	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 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 13: Disposal considerations
- SECTION 14: Transport information
- SECTION 15: Regulatory information
- SECTION 16: Other information



Exposure Scenario

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

Exposure Scenario, 25/06/2021

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

Table of contents

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

1. ES 1

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

1.1 TITLE SECTION

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

Environment Contributing Scenario

CS1	ERC8c - ERC8f
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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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Amount used, frequency and duration of use (or from service life)

Amounts used:

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

Conditions and measures related to sewage treatment plant

STP type:

Onsite Sewage Treatment Plant

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

Waste treatment

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

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

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

Additional Good Practice Advice:

Ensure control measures are regularly inspected and maintained.

1.3 Exposure estimation and reference to its source

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

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

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

Guidance to check compliance with the exposure scenario:

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



Exposure Scenario

1,3-Cyclohexanedimethanamine

Exposure Scenario, 29/12/2021

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

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

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

Technical and organisational conditions and measures

Technical and organisational measures

Ensure operatives are trained to minimise exposures.

Local exhaust ventilation

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

Personal protection

Wear suitable gloves tested to EN374.

Wear suitable face shield.

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

Use suitable eye protection.

Wear suitable coveralls to prevent exposure to the skin.

Wear suitable respiratory protection.

Other conditions affecting worker exposure

Indoor use

Professional use

Body parts exposed:

Assumes that potential dermal contact is limited to hands.

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

Additional Good Practice Advice:

Clear spills immediately.

1.3 Exposure estimation and reference to its source

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

Additional information on exposure estimation:

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

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

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

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

Guidance to check compliance with the exposure scenario:

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



Exposure Scenario

Polyoxpropylenediamine

Exposure Scenario, 17/06/2021

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

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

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

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

Personal protection

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

Dermal - minimum efficiency of: = 95 %

Other conditions affecting worker exposure

Indoor use

Professional use

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

1.3 Exposure estimation and reference to its source

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

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

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

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

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

Guidance to check compliance with the exposure scenario:

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



Exposure Scenario

Polyoxpropylenediamine

Exposure Scenario, 17/06/2021

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

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

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

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

Personal protection

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

Dermal - minimum efficiency of: = 95 %

Other conditions affecting worker exposure

Indoor use

Professional use

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

1.3 Exposure estimation and reference to its source

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

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

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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:

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