

Safety Data Sheet

According to U.S.A. Federal Hazcom 2012

1. Identification

1.1. Product identifier

Code: RIVOA
Product name: RIVO PARTE A

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

Intended use: EPOXY GLUE PART A.

Identified Uses	Industrial	Professional	Consumer
ADHESIVE SYSTEM/TREATMENT FOR STONE SECTOR	✓	✓	-

1.3. Details of the supplier of the safety data sheet

Name: TENAX SPA
Full address: Via I Maggio, 226
District and Country: 37020 Volargne Italy (VR)
Tel: +39 045 6887593
Fax: +39 045 6862456

e-mail address of the competent person responsible for the Safety Data Sheet: msds@tenax.it

Supplier: Tenax Usa
7606 Whitehall Executive Center Drive Suite 400, 28273 Charlotte NC, US
Tel. 001 7045831173 - Fax 001 7045833166
info@tenaxusa.com

1.4. Emergency telephone number

For urgent inquiries refer to: Infotrac
US and Canada: 1-800-535-5053
Int'l: 1-352-323-3500
info@infotrac.net

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement
 Serious eye damage, category 1 Causes serious eye damage.
 Skin irritation, category 2 Causes skin irritation.
 Skin sensitization, category 1 May cause an allergic skin reaction.

Hazard pictograms:



Signal words: Danger

Hazard statements:
H318 Causes serious eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.

2. Hazards identification ... / >>

Precautionary statements:

Prevention:

- P261** Avoid breathing dust / fume / gas / mist / vapours / spray.
- P280** Wear protective gloves / eye protection / face protection.
- P264** Wash the hands thoroughly after handling.
- P272** Contaminated work clothing should not be allowed out of the workplace.

Response:

- P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310** Immediately call a POISON CENTER / doctor if you feel unwell.
- P302+P352** IF ON SKIN: wash with plenty of water / . . .
- P362+P364** Take off contaminated clothing and wash it before reuse.
- P363** Wash contaminated clothing before reuse.

Storage:

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Disposal:

- P501** Dispose of contents / container according to applicable law.

2.2. Other hazards

Environmental classification as for Reg. (EC) 1272/2008 (CLP):

The product is classified as hazardous for environment pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).

Classification and Hazard Statement

Hazardous to the aquatic environment, chronic toxicity, category 2 Toxic to aquatic life with long lasting effects.

Hazard pictograms:



Hazard statements:

- H411** Toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

- P273** Avoid release to the environment.

Response:

- P391** Collect spillage.

Storage:

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Disposal:

- P501** Dispose of contents / container according to applicable law.

Additional hazards

Information not available

3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification

x = Conc. %

Classification:

BIS-[4-(2,3-EPOXI)PHENYL]PROPANE

INDEX 603-073-00-2 44 ≤ x < 46

Eye irritation, category 2 H319, Skin irritation, category 2 H315, Skin sensitization, category 1B H317, Hazardous to the aquatic environment, chronic toxicity, category 2 H411

EC 216-823-5

CAS 1675-54-3

REACH Reg. 01-2119456619-26

3. Composition/information on ingredients ... / >>

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

8.5 ≤ x < 9.5

Acute toxicity, category 4 H302, Serious eye damage, category 1 H318, Skin irritation, category 2 H315, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, chronic toxicity, category 2 H411

EC 629-850-6
CAS 1245638-61-2
REACH Reg. 01-2119490003-49-XXXX

1,6-HEXANEDIOL DIACRYLATE

INDEX 607-109-00-8 5 ≤ x < 6

Eye irritation, category 2 H319, Skin irritation, category 2 H315, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 2 H411

EC 235-921-9
CAS 13048-33-4
REACH Reg. 01-2119484737-22

4,4'-ISOPROPYLDENEDIPHENOL

INDEX 604-030-00-0 0.025 ≤ x < 0.08

Reproductive toxicity, category 1B H360, Serious eye damage, category 1 H318, Specific target organ toxicity - single exposure, category 3 H335, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=10

EC 201-245-8
CAS 80-05-7
REACH Reg. 01-2119457856-23

* There is a batch to batch variation.

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

Combustion products: COx and calcium fumes.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for

health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Store in a cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

Packing material:

Recommended: Phenol coated carbon steel enamelled drums, Plastic drums

To be avoided: copper, iron

7.3. Specific end use(s)

Information not available

8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

USA	NIOSH-REL	NIOSH publication No. 2005-149, 3th printing, 2007.
USA	OSHA-PEL	Occupational Exposure Limits - Limits for Air Contaminants TABLE Z-1-1910.1000.
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU)

8. Exposure controls/personal protection ... / >>

2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
 TLV-ACGIH ACGIH 2022

TALC

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	2				RESP
OSHA	USA		20			
OSHA	USA	30				INHAL
OSHA	USA	10				RESP
CAL/OSHA	USA	2				RESP
NIOSH	USA	2				RESP

2-METHOXY-1-METHYLETHYL ACETATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	275	50	550	100	SKIN
CAL/OSHA	USA	541	100	811	150	SKIN

4,4'-ISOPROPYLIDENEDIPHENOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	2				INHAL

CASTOR OIL, HYDROGENATED

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	10				INHAL
TLV-ACGIH	-	3				RESP

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves.

The following should be considered when choosing work glove material (OSHA 29 CFR 1910.138): compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

8. Exposure controls/personal protection ... / >>

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

HAND PROTECTION: Protect hands with work gloves for protection from chemical agents in nitrile or fluoroelastomer (EN 374-1: 2016) at least type B or higher based on the risk assessment carried out by the company. Breakthrough time > 480 minutes.

Material thickness:

NITRILE

short contact > 0.38 mm

prolonged contact > 0.55 mm

FLUOROELASTOMER

short contact > 0.50 mm

prolonged contact > 1.50 mm

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	paste	
Colour	as showed in color folder	
Odour	typical	
Odour threshold	not available	
pH	not available	Reason for missing data: substance/mixture is non-polar/aprotic (eg: an organic solvent mixture)
Melting point / freezing point	not available	
Initial boiling point	not available	
Boiling range	not available	
Flash point	> 93 °C (199,4 °F)	
Evaporation rate	not available	
Flammability	not available	
Lower inflammability limit	not available	
Upper inflammability limit	not available	
Lower explosive limit	not available	
Upper explosive limit	not available	
Vapour pressure	not available	
Vapour density	not available	
Relative density	1.4 g/cm ³	
Solubility	insoluble in water	
Partition coefficient: n-octanol/water	not available	
Auto-ignition temperature	not available	
Decomposition temperature	not available	
Viscosity	not available	
Explosive properties	not available	
Oxidising properties	not available	

9.2. Other information

VOC : 0,06 % - 0,82 g/litre

10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

1,6-HEXANEDIOL DIACRYLATE
 Polymerization may occur.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

10. Stability and reactivity ... / >>

10.5. Incompatible materials

BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE

Avoid contact with: acids,bases,oxidising substances.
Avoid unintentional contact with amines.

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

Acids, Bases, Oxidizing agents, Reducing agents

10.6. Hazardous decomposition products

BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE

The decomposition products depend on the temperature, the available air and the presence of other substances.
An uncontrolled exothermic reaction of epoxy resins liberates phenolic derivatives, carbon monoxide and water.

11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

1,6-HEXANEDIOL DIACRYLATE

LD50 (Oral): > 5000 mg/kg
LD50 (Dermal): 3650 mg/kg

4,4'-ISOPROPYLIDENEDIPHENOL

LD50 (Oral): 5000 mg/kg
LD50 (Dermal): 3000 mg/kg Rabbit

BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE

LD50 (Oral): 11400 mg/kg Ratto
LD50 (Dermal): 2000 mg/kg Ratto

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

LD50 (Oral): 540 mg/kg
LD50 (Dermal): 2000 mg/kg

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

LD50, oral, rat: OECD Test Guideline 401
LD50, dermal, rabbit: OECD Test Guideline 402)

SKIN CORROSION / IRRITATION

Causes skin irritation

11. Toxicological information ... / >>

1,6-HEXANEDIOL DIACRYLATE
OCSE test method no. 404: Acute Skin Corrosion/Irritation
Rabbits
Route of exposure Dermal
Effective dose 0.5 mL
Exposure time 4 hours
Results: Irritating edema

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol
Irritating to skin (OECD TG 404, Rabbit)

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

1,6-HEXANEDIOL DIACRYLATE
OCSE test method no. 405: Acute Eye Corrosion/Irritation
Rabbits
Route of Exposure: Eyes
Effective dose: 0.1 mL
Exposure time: 24 hours
Results: Irritating

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol
Severe eye irritation (OECD Test Guideline 405, Rabbit)

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

Skin sensitization

1,6-HEXANEDIOL DIACRYLATE
OCSE test method no. 406: Skin Sensitization
Guinea pig
Route of Exposure: Dermal
Results: Sensitization

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

1,6-HEXANEDIOL DIACRYLATE
OCSE test method no. 471: Bacterial Reverse Mutation Test
In vitro
Results: Negative

Method OCSE Test No. 474: Mammalian Erythrocyte Micronucleus Test
live
Results: Negative

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol
In vitro
Ames test in vitro: Inactive (Method: OECD Guideline 471)
In vitro gene mutation test in mammalian cells: Inactive (Method: OECD Guideline 476)

live
In vivo mouse micronucleus test: Inactive (Method: OECD Guideline 474)
In vivo Mammalian Comet Alkaline Test: Inactive (Method: OECD Guideline 489)

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Carcinogenicity Assessment:
1675-54-3 BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE
IARC:3

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

11. Toxicological information ... / >>

1,6-HEXANEDIOL DIACRYLATE

OCSE test method no. 422: Repeated Dose Toxicity Study Combined with the Rat Code Reproduction/Developmental Toxicity Screening Test

NOAEL results (highest concentration of a substance at which no adverse effects are observed)
250 mg/kg bw/day

OCSE test method no. 414: Prenatal Developmental Toxicity Study
Rats

NOAEL results (highest concentration of a substance at which no adverse effects are observed)
750 mg/kg bw/day

Adverse effects on sexual function and fertility

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

Absence of toxic effects on fertility

NOAEL (Fertility): 200 mg/kg bw/day

(Method: OECD Guideline 422, Rat, Oral)

NOAEL (Parental toxicity): 75 mg/kg bw/day

Adverse effects on development of the offspring

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol
(Method: OECD Guideline 414, Oral)

Absence of toxic effects on the development of the fetus

NOAEL (Developmental Toxicity): 75 mg/kg bw/day

NOAEL (Maternal toxicity): 75 mg/kg bw/day (Rabbit)

Toxic effects on the development of the fetus at maternally toxic doses

NOAEL (Developmental Toxicity): < 10 mg/kg bw/day

NOAEL (Maternal toxicity): < 10 mg/kg bw/day (Rat)

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

1,6-HEXANEDIOL DIACRYLATE

OCSE test method no. 422: Repeated Dose Toxicity Study Combined with Reproductive/Developmental Toxicity Screening Test
Rats

Route of exposure: Oral route

NOAEL results (highest concentration of a substance at which no adverse effects are observed)
250 mg/kg bw/day

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

Oral: No specific toxic effects noted

NOAEL= 75 mg/kg, LOAEL= 200 mg/kg (Method: OECD Guideline 422, Rat, 4 Weeks)

Local irritation, NOAEL= 25 mg/kg

dermal route: No undesirable systemic effects have been observed.

NOAEL= 12 mg/kg (Method: OECD Test Guideline 411, Rat, 3 months)

Local irritation, NOAEL= 0.75 mg/kg

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

12. Ecological information

This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

LC50, 96h: 3.2 mg/l (Method: OECD Test Guideline 203)

EC50, 48h: 13 mg/l (Method: OECD TG 202)

12. Ecological information ... / >>

1,6-HEXANEDIOL DIACRYLATE

LC50 - for Fish 0.38 mg/l/96h

EC50 - for Crustacea 2.7 mg/l/48h

EC50 - for Algae / Aquatic Plants 2.33 mg/l/72h

Chronic NOEC for Fish 0.072 mg/l

Chronic NOEC for Crustacea 0.14 mg/l

Chronic NOEC for Algae / Aquatic Plants 0.5 mg/l

4,4'-ISOPROPYLIDENEDIPHENOL

LC50 - for Fish 9.4 mg/l/96h *Menidia menidia*

EC50 - for Crustacea 10.2 mg/l/48h *Daphnia magna*

BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE

LC50 - for Fish 1.3 mg/l/96h

EC50 - for Crustacea 2.1 mg/l/48h *Dafnia*

EC50 - for Algae / Aquatic Plants > 11 mg/l/72h

Chronic NOEC for Crustacea 0.3 mg/l *Dafnia*

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

LC50 - for Fish 3.2 mg/l/96h

EC50 - for Crustacea 13 mg/l/48h

12.2. Persistence and degradability

1,6-HEXANEDIOL DIACRYLATE

Method: OECD Test No. 310: Ready Biodegradability - CO₂ in Sealed Vessels (Headspace Test)

Exposure time: 28 days

Value: Biodegradation 60 - 70%

Results: Readily biodegradable

BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE

Significant hydrolysis: 82% elimination in 28 days.

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

Not immediately biodegradable: 50% after 28d (Method: OECD Guideline 301 D)

1,6-HEXANEDIOL DIACRYLATE

Solubility in water 343 mg/l

Rapidly degradable

4,4'-ISOPROPYLIDENEDIPHENOL

Solubility in water 301 mg/l

Rapidly degradable

BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE

NOT rapidly degradable

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

NOT rapidly degradable

12.3. Bioaccumulative potential

12. Ecological information ... / >>

1,6-HEXANEDIOL DIACRYLATE

Partition coefficient: n-octanol/water 2.81

4,4'-ISOPROPYLIDENEDIPHENOL

Partition coefficient: n-octanol/water 3.4

2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol

Partition coefficient: n-octanol/water 3.11

12.4. Mobility in soil

1,6-HEXANEDIOL DIACRYLATE

Partition coefficient: soil/water 2.1

4,4'-ISOPROPYLIDENEDIPHENOL

Partition coefficient: soil/water 2.95

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

12.6. Other adverse effects

Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 3082

ADR / RID: In accordance with Special Provision 375, this product, when is packed in receptacles of a capacity \leq 5Kg or 5L, is not submitted to ADR provisions.

IMDG: In accordance with Section 2.10.2.7 of IMDG Code, this product, when is packed in receptacles of a capacity \leq 5Kg or 5L, is not submitted to IMDG Code provisions.

IATA: In accordance with SP A197, this product, when is packed in receptacles of a capacity \leq 5Kg or 5L, is not submitted to IATA dangerous goods regulations.

14.2. UN proper shipping name

ADR / RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE; 2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE; 2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BIS-[4-(2,3-EPOXIPROPOXI)PHENYL]PROPANE; 2-PROPENOIC ACID, REACTION PRODUCTS WITH PENTAerythritol)

14. Transport information ... / >>

14.3. Transport hazard class(es)

ADR / RID: Class: 9 Label: 9

IMDG: Class: 9 Label: 9

IATA: Class: 9 Label: 9



14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID: Environmentally Hazardous

IMDG: Marine Pollutant

IATA: Environmentally Hazardous



14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 90	Limited Quantities: 5 L	Tunnel restriction code: (-)
	Special provision: -		
IMDG:	EMS: F-A, S-F	Limited Quantities: 5 L	
IATA:	Cargo:	Maximum quantity: 450 L	Packaging instructions: 964
	Passengers:	Maximum quantity: 450 L	Packaging instructions: 964
	Special provision:	A97, A158, A197, A215	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

15. Regulatory information

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

U.S. Federal Regulations

TSCA:

All components of this product are listed on US Toxic Substances Control Act (TSCA) Inventory or are exempt from the listing / notification requirements.

Clean Air Act Section 112(b):

No component(s) listed.

Clean Air Act Section 602 Class I Substances:

No component(s) listed.

Clean Air Act Section 602 Class II Substances:

No component(s) listed.

Clean Water Act – Priority Pollutants:

15. Regulatory information ... / >>

No component(s) listed.

Clean Water Act – Toxic Pollutants:

No component(s) listed.

DEA List I Chemicals (Precursor Chemicals):

No component(s) listed.

DEA List II Chemicals (Essential Chemicals):

No component(s) listed.

EPA List of Lists:

313 Category Code:

No component(s) listed.

EPCRA 302 EHS TPQ:

No component(s) listed.

EPCRA 304 EHS RQ:

No component(s) listed.

CERCLA RQ:

No component(s) listed.

EPCRA 313 TRI:

No component(s) listed.

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

No component(s) listed.

State Regulations

Massachussetts:

14807-96-6 TALC

Minnesota:

14807-96-6 TALC

13048-33-4 1,6-HEXANEDIOL DIACRYLATE

New Jersey:

14807-96-6 TALC

New York:

No component(s) listed.

Pennsylvania:

No component(s) listed.

California:

14807-96-6 TALC

Proposition 65:

This product does not contain any substances know to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

H360	May damage fertility or the unborn child.
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.
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.

LEGEND:

- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: Regulation (EC) 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
- EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
- EPCRA 313 TRI: Toxics Release Inventory (Section 313 Category Code)
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RCRA Code: Resource Conservation and Recovery Act Code
- REACH: Regulation (EC) 1907/2006
- REL: Recommended exposure limit
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TSCA: Toxic Substances Control Act
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.

GENERAL BIBLIOGRAPHY:

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)

16. Other information ... / >>

- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112 of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Department Of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12. The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 05 / 07 / 08 / 09 / 10 / 11 / 12 / 14 / 15 / 16.

Safety Data Sheet

According to U.S.A. Federal Hazcom 2012

1. Identification

1.1. Product identifier

Code: **RIOB**
Product name: **RIVO PARTE B**

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

Intended use: **EPOXY GLUE PART B.**

Identified Uses	Industrial	Professional	Consumer
ADHESIVE SYSTEM/TREATMENT FOR STONE SECTOR	✓	✓	-

1.3. Details of the supplier of the safety data sheet

Name: **TENAX SPA**
Full address: **Via I Maggio, 226**
District and Country: **37020 Volargne Italy (VR)**
Tel: **+39 045 6887593**
Fax: **+39 045 6862456**

e-mail address of the competent person responsible for the Safety Data Sheet: **msds@tenax.it**

Supplier: **Tenax Usa**
7606 Whitehall Executive Center Drive Suite 400, 28273 Charlotte NC, US
Tel. 001 7045831173 - Fax 001 7045833166
info@tenaxusa.com

1.4. Emergency telephone number

For urgent inquiries refer to: **Infotrac**
US and Canada: 1-800-535-5053
Int'l: 1-352-323-3500
info@infotrac.net

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement	
Reproductive toxicity, category 2	Suspected of damaging fertility or the unborn child.
Acute toxicity, category 4	Harmful in contact with skin.
Specific target organ toxicity - repeated exposure, category 1	Causes damage to organs through prolonged or repeated exposure.
Skin corrosion, category 1	Causes severe skin burns and eye damage.
Serious eye damage, category 1	Causes serious eye damage.
Skin sensitization, category 1A	May cause an allergic skin reaction.

Hazard pictograms:



Signal words: **Danger**

2. Hazards identification ... / >>

Hazard statements:

H361	Suspected of damaging fertility or the unborn child.
H312	Harmful in contact with skin.
H372	Causes damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

Precautionary statements:

Prevention:

P260	Do not breathe dust / fume / gas / mist / vapours / spray.
P202	Do not handle until all safety precautions have been read and understood.
P201	Obtain special instructions before use.
P280	Wear protective gloves/ protective clothing / eye protection / face protection.
P270	Do not eat, drink or smoke when using this product.
P264	Wash the hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Response:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.
P310	Immediately call a POISON CENTER / doctor if you feel unwell.
P304+P340	IF INHALED: remove person to fresh air and keep comfortable for breathing.
P302+P352	IF ON SKIN: wash with plenty of water / . . .
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents / container according to applicable law.

The mixture contains 57.31% of components of unknown acute dermal toxicity.

2.2. Other hazards

Environmental classification as for Reg. (EC) 1272/2008 (CLP):

The product is classified as hazardous for environment pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).

Classification and Hazard Statement

Hazardous to the aquatic environment, acute toxicity, category 1	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	Very toxic to aquatic life with long lasting effects.

Hazard pictograms:



Signal words:

Warning

Hazard statements:

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

P273 Avoid release to the environment.

Response:

P391 Collect spillage.

Storage:

--

Disposal:

P501 Dispose of contents / container according to applicable law.

Additional hazards

Information not available

3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification:
4-NONYLPHENOL, BRANCHED		
INDEX 601-053-00-8	15 ≤ x < 16	Reproductive toxicity, category 2 H361, Acute toxicity, category 4 H302, Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=10, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=10
EC 284-325-5		
CAS 84852-15-3		
REACH Reg. 01-2119510715-45		
2-PIPERAZIN-1-YLETHYLAMINE		
INDEX 612-105-00-4	12.5 ≤ x < 13.5	Reproductive toxicity, category 2 H361, Acute toxicity, category 3 H311, Acute toxicity, category 4 H302, Specific target organ toxicity - repeated exposure, category 1 H372, Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, chronic toxicity, category 3 H412
EC 205-411-0		
CAS 140-31-8		
REACH Reg. 01-2119471486-30		
BENZYL ALCOHOL		
INDEX 603-057-00-5	3 ≤ x < 3.5	Acute toxicity, category 4 H302, Acute toxicity, category 4 H332
EC 202-859-9		
CAS 100-51-6		
REACH Reg. 01-2119492630-38		
3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE		
INDEX 612-067-00-9	1 ≤ x < 1.5	Acute toxicity, category 4 H302, Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Skin sensitization, category 1A H317, Hazardous to the aquatic environment, chronic toxicity, category 3 H412
EC 220-666-8		
CAS 2855-13-2		
REACH Reg. 01-2119514687-32		
DIETHYLENTRIAMINE		
INDEX 612-058-00-X	1 ≤ x < 1.5	Acute toxicity, category 4 H302, Acute toxicity, category 4 H312, Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Skin sensitization, category 1 H317
EC 203-865-4		
CAS 111-40-0		
REACH Reg. 01-2119473793-27		

* There is a batch to batch variation.

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

Combustion products: COx and calcium fumes.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Store in a cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7. Handling and storage ... / >>

7.3. Specific end use(s)

Information not available

8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

USA	NIOSH-REL	NIOSH publication No. 2005-149, 3th printing, 2007.
USA	OSHA-PEL	Occupational Exposure Limits - Limits for Air Contaminants TABLE Z-1-1910.1000.
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2022

PHOSPHORIC ACID

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	1		3		
OEL	EU	1		2		
OSHA	USA	1				
CAL/OSHA	USA	1		3		
NIOSH	USA	1		3		

2-METHOXY-1-METHYLETHYL ACETATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	275	50	550	100	SKIN
CAL/OSHA	USA	541	100	811	150	SKIN

DIETHYLENETRIAMINE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	4.2	1			SKIN
OSHA	USA	0		42	10	SKIN
CAL/OSHA	USA	4	1			SKIN
NIOSH	USA	4	1			SKIN

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves.

The following should be considered when choosing work glove material (OSHA 29 CFR 1910.138): compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes,

8. Exposure controls/personal protection ... / >>

mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

HAND PROTECTION: Protect hands with work gloves for protection from chemical agents in nitrile or fluoroelastomer (EN 374-1: 2016) at least type B or higher based on the risk assessment carried out by the company. Breakthrough time > 480 minutes.

Material thickness:

NITRILE

short contact > 0.38 mm

prolonged contact > 0.55 mm

FLUOROELASTOMER

short contact > 0.50 mm

prolonged contact > 1.50 mm

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	paste	
Colour	as showed in color folder	
Odour	amino	
Odour threshold	not available	
pH	9	
Melting point / freezing point	not available	
Initial boiling point	not available	
Boiling range	not available	
Flash point	> 93 °C	(199,4 °F)
Evaporation rate	not available	
Flammability	not available	
Lower inflammability limit	not available	
Upper inflammability limit	not available	
Lower explosive limit	not available	
Upper explosive limit	not available	
Vapour pressure	not available	
Vapour density	not available	
Relative density	1.4 g/cm ³	
Solubility	partially soluble in water	
Partition coefficient: n-octanol/water	not available	
Auto-ignition temperature	not available	
Decomposition temperature	not available	
Viscosity	not available	
Explosive properties	not available	
Oxidising properties	not available	

9.2. Other information

VOC : 3,82 % - 53,47 g/litre

10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

BENZYL ALCOHOL

Decomposes at temperatures above 870°C/1598°F. Possibility of explosion.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10. Stability and reactivity ... / >>

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

BENZYL ALCOHOL

May react dangerously with: hydrobromic acid, iron, oxidising agents, sulphuric acid. Risk of explosion on contact with: phosphorus trichloride.

3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE

May react dangerously with: strong oxidising agents, concentrated inorganic acids.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

BENZYL ALCOHOL

Avoid exposure to: air, sources of heat, naked flames.

3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE

Avoid contact with: strong acids, strong oxidants.

10.5. Incompatible materials

BENZYL ALCOHOL

Incompatible with: sulphuric acid, oxidising substances, aluminium.

10.6. Hazardous decomposition products

Information not available

11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

2-PIPERAZIN-1-YLETHYLAMINE

LD50 (Oral): 2097 mg/kg rabbit
LD50 (Dermal): 866 mg/kg rabbit

4-NONYLPHENOL, BRANCHED

LD50 (Oral): 1620 mg/kg rat
LD50 (Dermal): 2140 mg/kg rabbit

BENZYL ALCOHOL

LD50 (Oral): 1230 mg/kg Rat
LD50 (Dermal): 2000 mg/kg Rabbit
LC50 (Inhalation vapours): > 4.1 mg/l/4h Rat

DIETHYLENETRIAMINE

LD50 (Oral): 1140 mg/kg Rat
LD50 (Dermal): 1045 mg/kg Rabbit
LC50 (Inhalation mists/powders): 1.8 mg/l/4h Rat

11. Toxicological information ... / >>

3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE

LD50 (Oral): 1030 mg/kg Ratto
LD50 (Dermal): > 2000 mg/kg Ratto
LC50 (Inhalation mists/powders): > 5.01 mg/l/4h Ratto

SKIN CORROSION / IRRITATION

Corrosive for the skin

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

Skin sensitization

2-PIPERAZIN-1-YLETHYLAMINE

Maximization test
Route of Exposure: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitization by skin contact.

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

2-PIPERAZIN-1-YLETHYLAMINE

In vitro genotoxicity
Reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 471
Result: negative

In vitro genotoxicity
In vivo micronucleus test
Species: Mouse (male and female)
Method of application: Intraperitoneal injection
Doses: 175 - 560 mg/kg
Method: OECD Test Guideline 474
Result: negative

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Suspected of damaging fertility or the unborn child

Adverse effects on sexual function and fertility

2-PIPERAZIN-1-YLETHYLAMINE

OECD Test Guideline 422
Species: Rat, male and female
Method of application: Oral
Doses: 500/2000/8000ppm
Duration of single treatment: 28 d
Parental general toxicity: NOAEC: 8 000 ppm
General Toxicity F1: NOEL: 8 000 ppm
Method: OECD Test Guideline 422

Adverse effects on development of the offspring

2-PIPERAZIN-1-YLETHYLAMINE

Test Type: Reproductive and Developmental Toxicity Study
Species: Rat, male and female
Method of application: Oral

11. Toxicological information ... / >>

General toxicity in mothers: LOAEC: 8 000 ppm
Developmental Toxicity: NOEL: 8 000 ppm
Method: OECD Test Guideline 422

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Causes damage to organs

2-PIPERAZIN-1-YLETHYLAMINE
Species: Rat, male and female
NOAEL: 152 mg/kg/d
Method of application: oral (drinking water)
Exposure time: 28 d
Method: OECD Test Guideline 422
Result: positive

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

12. Ecological information

This product is dangerous for the environment and highly toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity

2-PIPERAZIN-1-YLETHYLAMINE

LC50 - for Fish	21901 mg/l/96h Pimephales promelas
EC50 - for Crustacea	58 mg/l/48h daphnia magna
EC50 - for Algae / Aquatic Plants	> 70 mg/l/72h Selenastrum capricornutum

4-NONYLPHENOL, BRANCHED

LC50 - for Fish	0.017 mg/l/96h marine water fish
EC50 - for Crustacea	0.051 mg/l/48h marine invertebrates
EC50 - for Algae / Aquatic Plants	0.027 mg/l/72h marine water algae
Chronic NOEC for Fish	0.00046 mg/l marine water fish
Chronic NOEC for Crustacea	0.00946 mg/l marine invertebrates
Chronic NOEC for Algae / Aquatic Plants	0.5 mg/l marine water algae

BENZYL ALCOHOL

LC50 - for Fish	460 mg/l/96h Pimephales promelas
EC50 - for Crustacea	230 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	770 mg/l/72h Pseudokirchneriella subcapitata
Chronic NOEC for Crustacea	51 mg/l Daphnia magna

12. Ecological information ... / >>

3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE

LC50 - for Fish	110 mg/l/96h <i>Leuciscus idus</i>
EC50 - for Crustacea	23 mg/l/48h <i>Daphnia magna</i>
EC50 - for Algae / Aquatic Plants	> 50 mg/l/72h <i>Scenedesmus subspicatus</i>
EC10 for Algae / Aquatic Plants	11.2 mg/l/72h <i>Scenedesmus subspicatus</i>
Chronic NOEC for Crustacea	3 mg/l 21 d

12.2. Persistence and degradability

2-PIPERAZIN-1-YLETHYLAMINE
Method: OECD Test Guideline 301F
Result: Not readily biodegradable.

2-PIPERAZIN-1-YLETHYLAMINE

Solubility in water > 1000 g/l
NOT rapidly degradable

4-NONYLPHENOL, BRANCHED
Rapidly degradable

BENZYL ALCOHOL
Rapidly degradable

DIETHYLENETRIAMINE

Solubility in water 1000 - 10000 mg/l
Rapidly degradable

3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE

Solubility in water 1000 - 10000 mg/l
NOT rapidly degradable

12.3. Bioaccumulative potential

2-PIPERAZIN-1-YLETHYLAMINE

Partition coefficient: n-octanol/water -1.48 Log Kow

4-NONYLPHENOL, BRANCHED

Partition coefficient: n-octanol/water 5.4

BCF > 260

BENZYL ALCOHOL

Partition coefficient: n-octanol/water 1.1

DIETHYLENETRIAMINE

Partition coefficient: n-octanol/water -5.58

12.4. Mobility in soil

4-NONYLPHENOL, BRANCHED

Partition coefficient: soil/water > 22

DIETHYLENETRIAMINE

12. Ecological information ... / >>

Partition coefficient: soil/water 3.4

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

12.6. Other adverse effects

Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 1760

14.2. UN proper shipping name

ADR / RID: CORROSIVE LIQUID, N.O.S. (4-NONYLPHENOL, BRANCHED; 2-PIPERAZIN-1-YLETHYLAMINE)
IMDG: CORROSIVE LIQUID, N.O.S. (4-NONYLPHENOL, BRANCHED; 2-PIPERAZIN-1-YLETHYLAMINE)
IATA: CORROSIVE LIQUID, N.O.S. (4-NONYLPHENOL, BRANCHED; 2-PIPERAZIN-1-YLETHYLAMINE)

14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8



IMDG: Class: 8 Label: 8



IATA: Class: 8 Label: 8



14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID: Environmentally Hazardous



IMDG: Marine Pollutant



IATA: NO

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

14. Transport information ... / >>

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 80	Limited Quantities: 5 L	Tunnel restriction code: (E)
	Special provision: -		
IMDG:	EMS: F-A, S-B	Limited Quantities: 5 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 856
	Passengers:	Maximum quantity: 5 L	Packaging instructions: 852
	Special provision:	A3, A803	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

15. Regulatory information

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

U.S. Federal Regulations

TSCA:

All components of this product are listed on US Toxic Substances Control Act (TSCA) Inventory or are exempt from the listing / notification requirements.

Clean Air Act Section 112(b):

No component(s) listed.

Clean Air Act Section 602 Class I Substances:

No component(s) listed.

Clean Air Act Section 602 Class II Substances:

No component(s) listed.

Clean Water Act – Priority Pollutants:

No component(s) listed.

Clean Water Act – Toxic Pollutants:

No component(s) listed.

DEA List I Chemicals (Precursor Chemicals):

No component(s) listed.

DEA List II Chemicals (Essential Chemicals):

No component(s) listed.

EPA List of Lists:

313 Category Code:

No component(s) listed.

EPCRA 302 EHS TPQ:

No component(s) listed.

EPCRA 304 EHS RQ:

No component(s) listed.

CERCLA RQ:

No component(s) listed.

EPCRA 313 TRI:

No component(s) listed.

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

No component(s) listed.

15. Regulatory information ... / >>

State Regulations

Massachusetts:

140-31-8	2-PIPERAZIN-1-YLETHYLAMINE
100-51-6	BENZYL ALCOHOL
111-40-0	DIETHYLENETRIAMINE

Minnesota:

100-51-6	BENZYL ALCOHOL
111-40-0	DIETHYLENETRIAMINE

New Jersey:

140-31-8	2-PIPERAZIN-1-YLETHYLAMINE
111-40-0	DIETHYLENETRIAMINE
2855-13-2	3-AMINOMETHYL 3,5,5-TRIMETHYLCYCLOHEXYLAMINE

New York:

No component(s) listed.

Pennsylvania:

140-31-8	2-PIPERAZIN-1-YLETHYLAMINE
100-51-6	BENZYL ALCOHOL
111-40-0	DIETHYLENETRIAMINE

California:

90-72-2	2,4,6-TRIS(DIMETHYLAMINOMETHYL) PHENOL (Phenols)
111-40-0	DIETHYLENETRIAMINE

Proposition 65:

This product does not contain any substances know to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

4-NONYLPHENOL, BRANCHED - (NONYLPHENOLS)

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

H361	Suspected of damaging fertility or the unborn child.
H311	Toxic in contact with skin.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
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.

LEGEND:

- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAA 112 © RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112©)
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: Regulation (EC) 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency

16. Other information ... / >>

- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
- EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
- EPCRA 313 TRI: Toxics Release Inventory (Section 313 Category Code)
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RCRA Code: Resource Conservation and Recovery Act Code
- REACH: Regulation (EC) 1907/2006
- REL: Recommended exposure limit
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TSCA: Toxic Substances Control Act
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.

GENERAL BIBLIOGRAPHY:

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112© of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minensota Chapter 5206 Departemnt Of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12. The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 05 / 07 / 08 / 09 / 11 / 12 / 14 / 15 / 16.