

EPOXY PRIMER 2:1

SECTION 1: SUBSTANCE/MIXTURE IDENTIFICATION AND MANUFACTURER/SUPPLIER IDENTIFICATION

1.1. Product identification

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

The first component of an epoxy filling primer ensuring active anti-corrosive protection. Intended for professional use.

1.3. Data of the safety data sheet supplier

Przedsiębiorstwo RANAL Sp. z o.o.

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1.4. Emergency telephone

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SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

The mixture is classified as hazardous.

Classification according to Regulation (EC) no 1272/2008

Hazard class, category code	Hazard class	Hazard code	Hazard type
Flam. Liq. 3	Flammable liquid, cat. 3	H226	Flammable liquid and vapour.
Skin Irrit. 2	Skin irritation, cat. 2	H315	Causes skin irritation.
Skin. Sens. 1	Skin sensitization, cat. 1	H317	May cause an allergic skin reaction.
Eye Dam. 1	Serious eye damage, cat. 1	H318	Causes serious eye damage.
STOT RE 2	Specific target organ toxicity – repeated exposure, cat. 2	H373	May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

Contains:

Xylene, n-butanol.

Contains epoxy components. May cause an allergic reaction.

Labelling according to Regulation (EC) no 1272/2008:

The product is classified and labelled according to CLP regulations.

Hazard pictograms:



GHS02

GHS07

GHS05

GHS08

Signal word: **Danger.**

Hazard statements:

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

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.

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P310 Immediately call a POISON CENTER/doctor.
 P302+P352 IF ON SKIN: Wash with plenty of water and soap.
 P314 Get medical advice/attention if you feel unwell.

Storage:
 P403+P235 Store in a well ventilated place. Keep cool.

Disposal:
 P501 Dispose of contents/container according to local/regional/national/ international regulations.

Additional information:
 Not applicable.

2.3. Other hazards

No data.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable.

3.2. Mixtures

Description: mixture of organic components with additives.

Substance name	Identification	Classification 1272/2008		% weight
Epoxy resin, average molecular weight MW >700 - <1100	CAS 25068-38-6 polymer	Skin Irrit. 2 Eye Irrit. 2 Skin Sens. 1	H315 H319 H317	< 30%
xylene – mixture of isomers	Index601-022-00-9 CAS 1330-20-7 EC 215-535-7 Registration no 01-2119488216-32-xxxx	Flam. Liq. 3 Acute Tox. 4 Acute Tox. 4 Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 STOT RE 2 Asp. Tox. 1	H226 H312 H332 H315 H319 H335 H373 H304	< 15%
4-methylpentan-2-one	Index 606-004-00-4 CAS 108-10-1 EC 203-550-1 Registration no 01-2119473980-30-xxxx	Flam. Liq. 2 Acute Tox. 4 Eye Irrit. 2 STOT SE 3	H225 H332 H319 H335	<10%
n-butyl alcohol	Index 603-004-00-6 CAS 71-36-3 EC 200-751-6 Registration no 01-2119484630-38-xxxx	Acute Tox.4 STOT SE 3 STOT SE 3 Eye Dam.1 Skin Irrit.2 Flam. Liq.3	H302 H335 H336 H318 H315 H226	<5%
ethylbenzene	Index 601-023-00-4 CAS 100-41-4 EC 202-849-4 Registration no 01-2119489370-35-xxxx	Flam. Liq. 2 Asp. Tox.1 Acute Tox. 4 STOT RE 2	H225 H304 H332 H373	<3%

Full text of hazard statements provided in section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Exposure routes:
 Airways, alimentary tract, contact with skin, contact with eyes.

Airways:
 Remove the victim from the area of exposure, provide access to fresh air. In case of respiratory arrest perform artificial respiration. Provide medical help if needed.

Ingestion:
 Rinse mouth with water. Do not give anything to an unconscious person to swallow. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Take the victim immediately to hospital.

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Contact with eyes:

Remove contact lenses. Rinse with plenty of water with the eyelid held wide open, avoiding a strong water jet. If necessary consult an ophthalmologist.

Contact with skin:

Take off contaminated clothes and shoes. Wash skin with plenty of water and soap. If skin irritation occurs, consult a doctor.

4.2. Most important symptoms both acute and delayed

High doses of vapours may cause: dizziness, drowsiness, headache, vomiting, loss of consciousness.

Contact with skin may cause allergic reactions, dryness and cracking. May cause eye damage.

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

Symptomatic treatment. Provide the product safety data sheets to the doctor. First aiders should wear medical gloves.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media**

Suitable extinguishing media:

Carbon dioxide CO₂, extinguishing powders, foam resistant to alcohol, water mist.

Unsuitable extinguishing media:

Full jet of water.

5.2. Special hazards arising from the substance or mixture

Flammable liquid mixture. Combustion may form carbon oxides and other toxic gases. Vapours may ignite again.

5.3. Advice for firefighters

Use self-contained breathing apparatus and full protective clothing. Tanks exposed to high temperature should be cooled with water from a safe distance and, if possible, removed from the endangered area.

Collect extinguishing water. Prevent fire-fighting water from entering sewage system or surface or ground water.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency measures**

Evacuate personnel to a safe place. Eliminate ignition sources. Avoid breathing vapour / mist / spray. Provide adequate ventilation. Avoid contamination of eyes, skin and clothing. Wear protective clothing and equipment.

6.2. Environmental precautions

Prevent from entering sewage system, surface water, ground water and soil. In the event of serious contamination of a watercourse, sewage system or soil, notify the appropriate administrative and control authorities and rescue organizations.

6.3. Methods and materials for containment and cleaning up

Eliminate the source of the leak. Collect small spills with non-combustible absorbent material. Collect large spills mechanically. Collect contaminated soil.

6.4. Reference to other sections

Personal protection measures – see section 8 of the Sheet. Disposal considerations – see section 13 of the Sheet.

SECTION 7: HANDLING AND STORAGE OF SUBSTANCES AND MIXTURES**7.1. Precautions for safe handling**

Recommendations for handling the mixture:

Prevent fire from starting and spreading. Avoid direct contact with the mixture. Avoid inhalation of vapours and aerosols. Avoid leakage. Prevent the product from entering the sewage system. Apply general regulations of industrial work hygiene. Do not eat, drink or smoke while using the product. Replace contaminated clothing. Wash thoroughly with water after use. Wash contaminated clothing before reuse. Wash hands and face before breaks at work.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly sealed, original containers. Store in a cool and well ventilated place, away from oxidants, sources of fire and heat. Prevent electrostatic discharge.

7.3. Special end use (s)

No further relevant data available.

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SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION MEASURES

8.1. Control parameters

National values of the highest permissible concentrations in the work environment, in accordance with the provisions of national law.

Substance	Identification	MPC (mg/m ³)	MPIC (mg/m ³)	MPCC (mg/m ³)
xylene – mixture of isomers	CAS 1330-20-7	100	200	-
4-methylpentan-2-one	CAS 108-10-1	83	200	-
n-butyl alcohol	CAS 71-36-3	50	150	-
ethylbenzene	CAS 100-41-4	200	400	-

CAS number	Absorbed substance	Marked substance	Biological material	PBC
1330-20-7	xylene	methyl hippuric acid	urine*	0.75 g/g creatinine

* sample taken once, at the end of the daily exposure on any day.

DNEL value:

xylene – mixture of isomers	DNEL value	workers	skin	long-term exposure – systemic effects	212 mg/kg bw/day
	DNEL value	workers	inhalation	acute exposure – local effects	442 mg/m ³
	DNEL value	workers	inhalation	acute exposure – systemic effects	442 mg/m ³
	DNEL value	workers	inhalation	long-term exposure – local effects	221 mg/m ³
	DNEL value	workers	inhalation	long-term exposure – systemic effects	221 mg/m ³
	DNEL value	consumers	ingestion	long-term exposure – systemic effects	12.5 mg/kg bw/day
	DNEL value	consumers	skin	long-term exposure – systemic effects	125 mg/kg bw/day
	DNEL value	consumers	inhalation	acute exposure – local effects	260 mg/m ³
	DNEL value	consumers	inhalation	acute exposure – systemic effects	260 mg/m ³
	DNEL value	consumers	inhalation	long-term exposure – local effects	65.3 mg/m ³
DNEL value	consumers	inhalation	long-term exposure – systemic effects	65.3 mg/m ³	

4-methylpentan-2-one	DNEL value	workers	skin	long-term exposure – systemic effects	11.8 mg/kg bw/day
	DNEL value	workers	inhalation	acute exposure – local effects	208 mg/m ³
	DNEL value	workers	inhalation	long-term exposure – local effects	83 mg/m ³
	DNEL value	workers	inhalation	long-term exposure – systemic effects	83 mg/m ³
	DNEL value	consumers	ingestion	long-term exposure – systemic effects	4.2 mg/kg bw/day
	DNEL value	consumers	skin	long-term exposure – systemic effects	4.2 mg/kg bw/day
	DNEL value	consumers	inhalation	acute exposure – local effects	155.2 mg/m ³
	DNEL value	consumers	inhalation	acute exposure – systemic effects	155.2 mg/m ³
	DNEL value	consumers	inhalation	long-term exposure – local effects	14.7 mg/m ³
	DNEL value	consumers	inhalation	long-term exposure – systemic effects	14.7 mg/m ³

n-butyl alcohol	DNEL value	workers	inhalation	long-term exposure – local effects	10 mg/m ³
	DNEL value	consumers	ingestion	long-term exposure – systemic effects	3.125 mg/kg/day
	DNEL value	consumers	inhalation	long-term exposure – local effects	55 mg/m ³

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ethylbenzene	DNEL value	workers	skin	long-term exposure – systemic effects	180 mg/kg bw/day
	DNEL value	workers	inhalation	acute exposure – local effects	293 mg/m ³
	DNEL value	workers	inhalation	long-term exposure – systemic effects	77 mg/m ³
	DNEL value	consumers	inhalation	long-term exposure – systemic effects	15 mg/m ³
	DNEL value	consumers	ingestion	long-term exposure – systemic effects	1.6 mg/kg bw/day

PNEC value:

xylene – mixture of isomers	PNEC value	fresh water	0.327 mg/l
	PNEC value	marine water	0.327 mg/l
	PNEC value	sediment (fresh water)	12.46 mg/kg d. m. of sediment
	PNEC value	sediment (marine water)	12.46 mg/kg d. m. of sediment
	PNEC value	biological sewage treatment plant	6.58 mg/dm ³
	PNEC value	soil	2.31 mg/kg d. m. of soil

4-methylpentan-2-one	PNEC value	fresh water	0.6 mg/l
	PNEC value	marine water	0.06 mg/l
	PNEC value	sediment (fresh water)	8.27 mg/kg
	PNEC value	sediment (marine water)	0.83 mg/kg
	PNEC value	sewage treatment plant	27.5 mg/dm ³
	PNEC value	soil	1.3 mg/kg
	PNEC value	intermittent release	1.5 mg/l

n-butyl alcohol	PNEC value	fresh water	0.082 mg/l
	PNEC value	marine water	0.0082 mg/l
	PNEC value	intermittent release	2.25 mg/l
	PNEC value	sewage treatment plant	2476 mg/l
	PNEC value	sediment (fresh water)	0.178 mg/kg
	PNEC value	sediment (marine water)	0.0178 mg/kg
	PNEC value	soil	0.015 mg/kg

ethylbenzene	PNEC value	fresh water	0.1 mg/l
	PNEC value	marine water	0.01 mg/l
	PNEC value	sediment (fresh water)	13.7mg/kg d. m. of sediment
	PNEC value	sediment (marine water)	1.37 mg/kg d. m. of sediment
	PNEC value	biological sewage treatment plant	9.6 mg/dm ³
	PNEC value	soil	2.68 mg/kg d. m. of soil

8.2 Exposure control

Technical control measures:

General and local exhaust ventilation. Explosion-proof electrical installation.

Personal protective measures:

Respiratory protection:

If there is no adequate ventilation, use a mask with an organic vapour filter type A or better (EN 140 or EN 141).

Eye protection:

Protective goggles / tight safety glasses.

Hand protection:

Chemical resistant gloves. During full contact use nitrile gloves, thickness >0.55 mm, penetration time > 480 min., or butyl rubber gloves, thickness > 0.3 mm, penetration time >480 min.). As the product is a mixture consisting of several substances, the resistance of the materials from which the gloves are made cannot be calculated in advance and should therefore be checked before use. Information about the penetration time of the substance should be obtained from the glove manufacturer.

Skin protection:

Protective antistatic clothing.

Environmental exposure control:

Prevent the product from entering into sewage system, water and soil.

General recommendations related to safety and hygiene:

The personal protective equipment used should meet the requirements of applicable law.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	viscous liquid
Colour:	beige
Odour:	characteristic
Odour threshold:	no data available
pH:	not applicable
Melting/freezing point:	no data available
Boiling point:	app. 110°C
Flash point:	24
Auto ignition point:	no data available
Breakdown point:	no data available
Evaporation rate:	no data available
Flammability (solid, gas):	not applicable
Explosion limit:	bottom 0.8 vol.%, top 7 vol.% (xylene)
Vapour pressure:	0.65 – 0.944 kPa at 20°C (xylene)
Vapour density (relative to air):	no data available
Relative density:	app. 1.3 g/cm ³ at 20°C
Solubility (in water):	insoluble
n-octanol/water partition coefficient:	3.12 – 3.2 (xylene)
Viscosity:	not applicable
Explosive properties:	no data available
Oxidizing properties:	no data available

9.2. Other information

No further relevant data available.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

There are no experimental data on the reactivity of the product under normal conditions of use.

10.2. Chemical stability

The product is stable under normal conditions. It does not require stabilizers.

10.3. Possibility of hazardous reactions

Vapours may form explosive mixtures with air.

10.4. Conditions to be avoided

High temperatures, open flames and other ignition sources.

10.5. Incompatible materials

Avoid contact with strong oxidants, acids, amines and alcohols.

10.6. Hazardous decomposition products

As a result of thermal decomposition, carbon monoxide and other toxic gases are generated.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

There is no experimental data on the toxicological properties of the product. The assessment was based on the data concerning the components included in the product.

Acute toxicity:

epoxy resin, average molecular weight MW >700 - <1100	LD ₅₀ (rat, female oral) LC ₅₀ (inhalation, 4h) LD ₅₀ (skin)	> 2 000 mg/kg > 20 mg/l > 2 000 mg/kg
xylene – mixture of isomers	LD ₅₀ (rat, oral) LC ₅₀ (rat, inhalation) LD ₅₀ (rabbit, skin)	> 2000 mg/kg > 20 mg/dm ³ /4h > 2000 mg/kg
4-methylpentan-2-one	LD ₅₀ (rat, oral) LC ₅₀ (rat, inhalation) LD ₅₀ (rabbit, skin)	2100 mg/kg 8.3 – 16.6 mg/dm ³ /4h 16000 mg/kg
n-butyl alcohol	LD ₅₀ (rat, female, oral)	2292 mg/kg

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	LC ₅₀ (rat, inhalation)	>17.76 mg/l/4h
	LD ₅₀ (rabbit, skin)	3430 mg/kg
ethylbenzene	LD ₅₀ (rat, oral)	3500 mg/kg
	LC ₅₀ (rat, inhalation)	17.8 mg/m ³ /4h
	LD ₅₀ (skin)	15400 mg/kg
	TCL0 (human, inhalation)	442 mg/m ³ /8h

Skin corrosion/irritation:

The mixture is classified as causing skin irritation.

Serious eye damage/eye irritation:

The mixture is classified as causing serious eye damage.

Allergic effect on airways or skin:

The mixture is classified as having allergic effect on skin.

Mutagenic effect on germ cells:

The mixture is not classified as mutagenic. No data confirming the hazard.

Carcinogenic effect:

The mixture is not classified as carcinogenic. No data confirming the hazard.

Harmful effect on reproduction:

The mixture is not classified as harmful to reproduction. No data confirming the hazard.

Specific target organ toxicity – single exposure:

The mixture is not classified as toxic to target organs – single exposure. No data confirming the hazard.

Specific target organ toxicity – repeated exposure:

The mixture is classified as toxic to target organs – repeated exposure.

Aspiration hazard:

The mixture is not classified as causing aspiration hazard. No data confirming the hazard.

SECTION 12: ECOLOGICAL INFORMATION**12.1. Toxicity**

There are no experimental data on the ecotoxicological properties of the product. The assessment was based on the data concerning the components included in the product.

acute toxicity to fish (Rainbow trout)	LC ₅₀ > 100 mg/l/96h
acute toxicity to daphnia (<i>Daphnia magna</i>)	EC ₅₀ > 100 mg/l/ 48h
acute toxicity to algae	EC ₅₀ > 100 mg/l/72h

acute toxicity to fish (<i>Pimephales promelas</i>)	LC ₅₀ 16.1 mg/l/96h
acute toxicity to fish (<i>Oncorhynchus mykiss</i>)	LC ₅₀ 2.6 mg/l/96h
acute toxicity to aquatic invertebrates (<i>Daphnia magna</i>)	EC ₅₀ 3.82 mg/l/48h
acute toxicity to algae	EC ₅₀ 2.2 mg/l/73h

acute toxicity to fish (<i>pimephales promelas</i>)	LC ₅₀ 1376 mg/l/96h
acute toxicity to daphnia (<i>Daphnia magna</i>)	EC ₅₀ 1328 mg/l/48h
acute toxicity to microorganisms of activated sludge	EC ₅₀ 4390 mg/l/17h
acute toxicity to aquatic plants (growth rate)	EC ₅₀ 225 mg/l/96h
chronic toxicity to daphnia (<i>Daphnia magna</i>)	NOEC 4.1 mg/l/21d

toxicity to fish (<i>Pimephales promelas</i>)	LC ₅₀ 49 mg/l/96h
acute toxicity to aquatic invertebrates (<i>Daphnia magna</i>)	EC ₅₀ 184 mg/l/24h

12.2. Persistence and degradability

Epoxy resin – biodegradability 5%, 28 days
n-butyl alcohol – biodegradability 92%, 20 days

12.3. Bioaccumulative potential

Ethylbenzene – log Pow 3.15
4-methylpentan-2-one – log Pow 1.31

12.4. Mobility in soil

No data available.

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12.5. Results of PBT and vPvB assessment

Substances included in the mixture do not meet the criteria of PBT or vPvB according to Annex XIII.

12.6. Other hazardous effects

Harmful to aquatic life with long-lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Used packaging and waste product should be delivered to authorised companies. Dispose of according to applicable local and official waste regulations – see section 15.




Waste code:

- 08 01 11*** Waste paints and varnishes containing organic solvents or other dangerous substances.
- 15 01 10*** Packaging containing residues of or contaminated by dangerous substances (e.g. pesticides of I and II class of toxicity – very toxic or toxic).

Waste container code:

- 15 01 02** Plastic packaging.
- 15 01 04** Metallic packaging.

SECTION 14: TRANSPORT INFORMATION

		ADR/RID	IMGD	IATA
14.1. UN number		1263	1263	1263
14.2. UN proper shipping name		PAINT		
14.3. Transport hazard class (-es)		3	3	3
Classification code		F1	F1	F1
Warning label no 3				
14.4. Packaging group		III	III	III
14.5. Environmental hazards		no	no	no
14.6. Special precautions for user		Not applicable.		
14.7. Transport in bulk according to Annex II of MARPOL 73/78 Convention and the IBC Code		Not applicable.		

SECTION 15: REGULATORY INFORMATION

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

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC. Official Journal of the European Union, L 36, 29 May 2007 with following amendments Official. Journal of the. EU L 304 22 November 2007; Official Journal of the EU L 268 09 October 2008; Official Journal of the EU L 46 17 February 2009; Official Journal of the EU L 164 26 June 2009, Official Journal of the EU L 133/1 31 May 2010 with following amendments.
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Official Journal of the EU L 353 31 December 2008); with following amendments (adaptation to technical progress 1-13 ATP).
- Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Official Journal of the EU L 132 29 May 2015 together with the correction (Official Journal of the EU L 12 17 January 2017).

15.2. Chemical safety assessment

Chemical Safety Assessment has not been carried out.

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SECTION 16: OTHER INFORMATION

Full text of hazard statements mentioned in sections 2-15 of the Sheet:

Skin Irrit. 2	Skin irritation, cat. 2
H315	Causes skin irritation.
Eye Dam. 1	Serious eye damage, cat. 1
H318	Causes serious eye damage.
Eye Irrit. 2	Eye irritation, cat. 2
H319	Causes serious eye irritation.
Skin Sens. 1	Skin sensitization, cat. 1
H317	May cause an allergic skin reaction.
Flam. Liq. 2	Flammable liquid, cat. 2
H225	Highly flammable liquid and vapour.
Flam. Liq. 3	Flammable liquid, cat. 3
H226	Flammable liquid and vapour
Acute Tox. 4	Acute toxicity, cat. 4
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
STOT SE 3	Specific target organ toxicity – single exposure, cat. 3
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
STOT RE 2	Specific target organ toxicity – repeated exposure, cat. 2
H373	May cause damage to organs through prolonged or repeated exposure.
Asp. Tox. 1	Aspiration hazard.
H304	May be fatal if swallowed and enters airways.

Recommended restrictions in use:

The product is intended for professional use only.

Training advice

Read the Material Safety Data Sheet before use.

Explanation of abbreviations and acronyms used in the Material Safety Data Sheet:

EC	reference number used in the European Union to identify hazardous substances, in particular those registered in the European Inventory of Existing Chemical Substances (EINECS), or in European List of Notified Chemical Substances (ELINCS), or the list of chemicals listed in 'No-longer polymers'.
CAS	a number assigned to a chemical substance in Chemical Abstracts Service
MPC	maximum permissible concentration at the workplace - the highest permissible weighted average concentration, whose impact on the employee during 8 hours of work, throughout the entire period of his professional activity, should not cause changes in his state of health and the state of health of his future generations
MPIC	maximum permissible instantaneous concentration - the maximum permissible instantaneous concentration set as an average value that should not cause negative changes in the state of health of the worker and the state of health of his future generations, if it persists in the work environment for no more than 30 minutes during a shift
MPPC	concentration value which, due to the threat to the employee's health or life, cannot be exceeded in the work environment at any time
vPvB	substance, which is very Persistent and very Bio-accumulative
PBT	substance, which is Persistent, Bio-accumulative and toxic
DL ₅₀	lethal dose - the dose at which deaths of 50% of test animals are observed over a specified period of time
CL ₅₀	lethal concentration - the concentration at which deaths of 50% of the test animals are observed over a specified period of time
CE ₅₀	effective concentration - the effective concentration of the substance causing a response at 50% of the maximum value
DNEL	no-harmful level for human health - the level of exposure to a substance not harmful to human health
PNEC	predicted no-effect concentration - the concentration of the substance below which no harmful effects for the environment are expected
PBC	permissible concentration in biological material - the highest permissible level of a specific factor or its metabolite in the relevant biological material or the highest permissible value of an appropriate indicator determining the impact of a chemical agent on the body
BCF	bioconcentration factor - the ratio of the concentration of a substance in the body to its concentration in water at equilibrium
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
UN number	four-digit material identification number in the UN Hazardous Materials List, derived from the UN Model Regulations, to which the individual material, mixture or object is classified
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
IMDG	International Maritime Dangerous Goods Code
IATA	International Air Transport Association

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Other data sources:

IUCLID International Uniform Chemical Information Database

ESIS European Chemical Substances Information System

ECHA Website

Other information:

The product described in the safety data sheet should be stored and used in accordance with good industrial practice and in accordance with all legal regulations. The information and recommendations contained in the safety data sheet are based on our general experience and our latest knowledge, and have been presented in good faith. No part of this publication can be treated as guarantee, warranty or position directly, indirectly or otherwise. In all cases, it is the user's responsibility to determine and verify that the information and recommendations are accurate, sufficient and relevant to the particular case. The user is responsible for creating the conditions for the safe use of the product and he is responsible for the consequences of incorrect use of this product.

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