

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH)

Trade name: epros®silicate resin type L30E1 Comp. B

Date of print: 17/04/2014

Revision date: 15/04/2014

Version: 2.1 / EN

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

1.1 Product identifier: epros®silicate resin type L30E1 Comp. B

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

“B” component for water glass – polyisocyanate based two-component synthetic resin. The synthetic resin (components “A”+“B”) is used for the lining of sewer pipes and manholes. The application has to be carried out under professional, industrial conditions by persons having proper previous training.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

TrelleborgPipe Seals Duisburg GmbH

Street/POB:

Dr.-Alfred-Herrhausen-Allee 36

Postcode/City/Country:

47228 Duisburg/ Germany

E-mail address for a competent person responsible for the safety data sheet:

technic.epros@trelleborg.com

Phone:

+49 (0) 2065 999-0

1.4 Emergency telephone number

+49 (0) 2065 999-150

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No. 1272/2008 (CLP):

| <i>Hazard classes / categories</i> | <i>Hazard statements</i> |
|------------------------------------|---|
| Skin Irrit. 2 | H315 Causes skin irritation |
| Skin Sens. 1 | H317 May cause an allergic skin reaction |
| Eye Irrit. 2 | H319 Causes serious eye irritation |
| Acute Tox. 4. | H332 Harmful if inhaled |
| Resp. Sens. 1 | H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| STOT SE 3 | H335 May cause respiratory irritation |
| Carc. 2 | H351 Suspected of causing cancer |
| Repr. 2 | H361 Suspected of damaging fertility or the unborn child |
| STOT RE 2 | H373 May cause damage to organs through prolonged or repeated exposure through prolonged or repeated exposure |
| Aquatic Chronic 3 | H412 Harmful to aquatic life with long lasting effects |

2.1.2. Classification according to Directive 1999/45/EC:

| <i>Classification</i> | <i>R-phrases</i> |
|-----------------------|---|
| Xn Harmful | R20 Harmful by inhalation |
| Xi Irritant | R36/37/38 Irritating to eyes, respiratory system and skin |
| Carc. 3 | R40 Limited evidence of a carcinogenic effect |
| | R42/43 May cause sensitisation by inhalation and skin contact |
| Xn Harmful | R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation |
| | R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| Repr. 3 | R62 Possible risk of impaired fertility |
| Repr. 3 | R63 Possible risk of harm to the unborn child |

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2.2. Label elements**2.2.1. Labeling according to Regulation (EC) No 1272/2008 [CLP]**

Hazard pictograms:



Signal word: Danger

Hazard statements:

| | |
|------|--|
| H315 | Causes skin irritation |
| H317 | May cause an allergic skin reaction |
| H319 | Causes serious eye irritation |
| H332 | Harmful if inhaled |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H373 | May cause damage to organs through prolonged or repeated exposure through prolonged or repeated exposure |
| H412 | Harmful to aquatic life with long lasting effects |

Supplemental hazard information (EU):

EUH204 Contains isocyanates. May produce an allergic reaction.

Precautionary statements:

| | |
|-----------|--|
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P285 | In case of inadequate ventilation wear respiratory protection. |
| P302+P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P304+P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| P309+P311 | IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician. |

Hazard determining component(s) for labelling: contains: **Diphenylmethan diisocyanate, isomers and homologes (CAS: 9016-87-9); Tris(2-chloro-1-methylethyl) phosphate (CAS: 13674-84-5).**

2.3. Other hazards

The mixture does not meet persistent (P) and bioaccumulation (B) criteria, but it meets the criteria for toxicity (T). The mixture is not PBT and vPvB.

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SECTION 3. Composition/information on ingredients

3.2. Mixtures

Chemical characterization

| Name | EC-Nr. | CAS-Nr. | REACH Reg. Nr. | Content (%) | Classification according to 67/548/EEC | | Classification according to 1272/2008 (CLP) | |
|--|-----------|------------|-------------------|----------------|---|---|---|--|
| | | | | | Hazard symbol(s) ¹ | R-phrases) ¹ | Hazard categories ¹ | H-phrases) ¹ |
| Polymer MDI ² | (polymer) | 9016-87-9 | (polymer) | ≥65 | Xn Xi Carc. 3 Xn | R20 R36/37/38 R40 R42/43 R48/20 | Acute Tox. 4 Skin Irrit. 2 Eye Irrit. 2 Resp. Sens. 1 Skin Sens. 1 Carc. 2 STOT SE 3 STOT RE 2 | H332 H315 H319 H334 H317 H351 H335 H373 |
| Phenolisopropylated phosphate(3:1) ³ | 273-066-3 | 68937-41-7 | ⁴ | ≤20 | Xn Repr. 3 Repr. 3 N | R48/22 R62 R63 R51/53 | Repr. 2 STOT RE 2 Aquatic Chron. 4 | H361 H373 H413 |
| Tris(2-chloro-1-methyl- ethyl) phosphate (TCPP) | 237-158-7 | 13674-84-5 | ⁵ | <10 | Xn | R22 | Acute Tox. 4 | H302 |
| Triisobutyl phosphate | 204-798-3 | 126-71-6 | ⁶ | <10 | Xi | R43 R52/53 | Skin Sens. 1 Aquatic Chronic 3 | H317 H412 |
| 2,4,6-triallyloxy-1,3,5- triazine | 202-936-7 | 101-37-1 | ⁷ | ≤5 | Xn N | R22 R51/53 | Akut Tox. 4 Aquatic Chronic 2 | H302 H411 |

¹ – See Section 16 for the full text of the abbreviations declared above.

² – The mixture contains <25% 4,4'-MDI (CAS: 101-68-8).

³ – The mixture contains <1% Triphenyl phosphate (CAS: 115-86-6)

⁴ – We have not received the data from our suppliers.

⁵ – 01-2119486772-26-0000

⁶ – 01-2119957118-32-0003

⁷ – 01-2119489756-17-0000

SECTION 4. First aid measures

4.1. Description of first aid measures

Immediately remove contaminated clothing.

If inhaled: Keep patient calm, remove to fresh air and seek medical attention.

On skin contact: After contact with skin, wash immediately with plenty of water. Consult a doctor if skin irritation persists.

On contact with eyes: Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion: Do not induce vomiting. If the person is conscious give to drink: from 1 to 2 glasses of water. Get medical attention. Never give anything by mouth to an unconscious person

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

Symptoms: tightness in the chest, coughing, difficulty breathing.

Overexposure can cause: Attacks, depression, hypoxemia, tremor.

Hazards: Symptoms can appear later.

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

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote, administer corticosteroid dose aerosol to prevent pulmonary oedema.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: dry powder, carbon dioxide, alcohol-resistant foam, water spray

5.2. Special hazards arising from the substance or mixture

Carbon dioxide, carbon monoxide, hydrogen cyanide, nitrogen oxides, isocyanate.

The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for firefighter

Special protective equipment: Wear self-contained breathing apparatus and chemical-protective clothing.

Further information: Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Ensure adequate ventilation. Use breathing apparatus if exposed to vapours/dust/aerosol.

6.2. Environmental precautions

Do not empty into drains. Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with regulations.

Neutralize with a solution of 5 - 10 % Sodium carbonate, 0.2 - 2 % detergents and 90 - 95 % water.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapours of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gastight. Protect against moisture. Products freshly manufactured from isocyanates can contain incompletely reacted isocyanates and other dangerous substances.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases.

Suitable materials for containers: High density polyethylene (HDPE), Low density polyethylene (LDPE), Steel

Unsuitable materials for containers: paper, board.

Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place. Protect against moisture. Formation of CO₂ and build up of pressure possible. Danger of bursting when sealed gastight.

Storage class VCI: (10) Flammable liquids (if not LGK 3 A or 3 B).

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7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8. Exposure controls/personal protection**8.1. Control parameters**

A workplace exposure level (WEL) of 0.02mg/m³ for total isocyanates (as NCO) as an 8 hour TWA, and a short term WEL (15 min) of 0.07 mg/m³ have been assigned in the United Kingdom. A BMGV for isocyanates, based on the measurement of urinary diamines, has been set at 1 µmol diamine/mol creatinine. (<http://www.hse.gov.uk/foi/internalops/sectors/manuf/03-10-07.htm>)

8.2. Exposure controls

Respiratory protection: Respiratory protection in case of vapour/aerosol release. Combination filter for gases/vapours of organic, inorganic, acid inorganic particles (f. e. EN 14387 Type ABEK).

Hand protection: Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

butyl rubber (butyl) - 0.7 mm coating thickness

nitrile rubber (NBR) - 0.4 mm coating thickness

chloroprene rubber (CR) - 0.5 mm coating thickness

Unsuitable materials

polyvinylchloride (PVC) - 0.7 mm coating thickness

Polyethylene-Laminate (PE laminate) - ca. 0.1 mm coating thickness

Eye protection: Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection: safety shoes (e.g. according to EN 20346)

General safety and hygiene measures:

Do not breathe vapour/spray. With products freshly manufactured from isocyanates body protection and chemical resistant protective gloves is recommended. Wearing of closed work clothing is required additionally to the stated personal protection equipment. No eating, drinking, smoking or tobacco use at the place of work. Take off immediately all contaminated clothing. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied.

SECTION 9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

- | | |
|-----------------------------------|--------------------|
| a) Appearance: | liquid, dark-brown |
| b) Odour: | not applicable |
| c) Odour threshold: | no data |
| d) pH-value: | not applicable |
| e) Melting point/freezing point: | no data |
| f) Boiling range: | no data |
| g) Flash point: | >200 °C MDI |
| h) Evaporation rate: | no data |
| i) Flammability (solid, gaseous): | no data |

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| | |
|---|--|
| j) Ignitable, explosive range: | no data |
| k) Vapour pressure: | < 0.00001 mbar (at 20°C) |
| l) Vapour density: | no data |
| m) Density: | 1,18±0,01 g/cm ³ (at 25°C) |
| n) Solubility: | Reacts with water at the border area with slow CO ₂ appearance into non soluble, high melting point or not melting polyurea |
| o) Partition coefficient n-octanol/water: | not applicable |
| p) Self-ignition temperature: | no data |
| q) Decomposition temperature: | no data |
| r) Viscosity: | 150 - 210 mPa.s (at 25°C) |
| s) Explosive properties: | no data |
| t) Oxidising properties: | no data |

9.2. Other information

Not applicable.

SECTION 10. Stability and reactivity**10.1. Reactivity**

No corrosive effect on metal.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Dangerous reactions: On contact with water, gaseous decomposition products are formed, causing overpressure in tightly closed containers. Risk of bursting. Reactions with substances containing active hydrogen.

10.4. Conditions to avoid

Temperature: > 90 °C

Thermal decomposition: > 230 °C

10.5. Incompatible materials

Substances to avoid: acids, alcohols, amines, water, alkalines.

10.6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11. Toxicological information

Information is related to Polymer MDI if no other is mentioned.

11.1. Information on toxicological effects**Acute toxicity – oral:** Harmful

Rats LD50 = 753 mg/kg bw, 2,4,6-triallyloxy-1,3,5-triazine (CAS 101-37-1)

Rats LD50 = 630-2000 mg/kg Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

Acute toxicity – vapour inhalation: Harmful

Rats LC50 = 0.49 mg/l (4h)

Rats LC50 = 7 mg/l (4 h) Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

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Acute toxicity – dermal: Not classified. Based on available data, the classification criteria are not met.

| | |
|--------|--|
| Rabbit | LD50 >9400 mg/kg bw (24 h) |
| Rabbit | LD50 >5000 mg/kg bw Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5) |
| Rats | LD50 >2000 mg/kg bw Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5) |

11.2. Irritation/Corrosion: Summarized the results of the studies together with human occupational case reports support the official classification.

Skin corrosion/Skin irritation: Irritating. Irritating in rabbits.

Eye damage/Irritation: Irritating. Irritating in rabbits.

(Read-across based on 4,4-Methylenediphenyldiisocyanate – CAS 101-68-8.)

Summarized the available animal data would not support classification of MDI as an eye irritant. But together with human occupational case reports in which symptoms of eye irritation were reported the legal classification as eye irritant should be applied.

11.3. Sensitisation: Animal data as well as studies in humans provide evidence of possible skin sensitisation, and of respiratory sensitisation due to MDI. Animal studies indicate that MDI is a strong allergen. Human case reports describe the occurrence of allergic contact dermatitis due to MDI exposure.

Respiratory sensitisation: respiratory sensitizers

Skin sensitisation: skin sensitizers
Sensitizing in rats.

11.4. Mutagenicity: Not classified. Based on available data, the classification criteria are not met.

11.5. Carcinogenicity: Carc. Cat. 2

| | |
|-------------------|---|
| Rats (inhalation) | NOAEC = 0.2 mg/ m ³ (Toxicity) |
| | NOAEC = 1 mg/m ³ (Carcinogenicity) |
| | LOAEC = 6 mg/m ³ (Carcinogenicity) |

11.6. Reproductive toxicity: Not classified. Based on available data, the classification criteria are not met.

Effects on fertility: No fertility nor multigeneration studies are available for MDI.

Developmental toxicity: MDI is not a developmental toxicant.

| | |
|------|--|
| Rats | NOAEL = 4 mg/m ³ (maternal and foetal toxicity) |
| | NOAEL = 12 mg/m ³ (teratogenicity) |

11.7. STOT-single exposure: Harmful

(Read-across based on 4,4-Methylenediphenyldiisocyanate – CAS 101-68-8)

11.8. STOT-repeated exposure: Harmful

| | |
|-------------------|---|
| Rats (inhalation) | NOAEC = 0.2 mg/m ³ (2 years) |
| | LOAEC = 1.0 mg/m ³ |

| | |
|-------------|---|
| Rats (oral) | NOEL > 20 000 ppm (13 weeks) Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5) |
|-------------|---|

11.9. Aspiration hazard: Not classified due to lack of data.

11.10. Toxicokinetics (absorption, metabolism, distribution and elimination)

(Read-across based on 4,4-Methylenediphenyldiisocyanate – CAS 101-68-8)

Oral exposure: No information is available on the toxicokinetics of MDI following oral exposure in animals.

Dermal exposure: No radioactivity was absorbed through human skin during a 54h continuous exposure, and only small amounts (maximally 0.23% of applied dose) were absorbed through rat and guinea pig skin. The majority of applied MDI equivalents were found to be associated with the skin.

Inhalation exposure: With respect to inhalation exposure, there is good and reliable data regarding distribution/excretion in experimental animals. Most of the systemically available dose was excreted via bile, and a slightly lower amount via urine.

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11.11. Genetic toxicity: Not classified. Based on available data, the classification criteria are not met.

SECTION 12. Ecological information

Information is related to Polymer MDI if no other is mentioned

12.1. Toxicity

12.1.1. Aquatic toxicity

Short-term toxicity to fish:

Freshwater fish LC50 = 1000 mg/l (96 h)

Fish: LC50 (96 h) 56,2 mg/l Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

Freshwater fish LC50 = 7.05 mg/l (96 h), 2,4,6-triallyloxy-1,3,5-triazine (CAS 101-37-1)

Short-term toxicity to aquatic invertebrates:

Freshwater invertebrates: EC50/LC50 = >1000 mg/l (24 h)

Daphnia magna: EC50 131 mg/l, (48 h) Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

Long-term toxicity to invertebrates:

Freshwater invertebrates EC10/LC10 or NOEC = 10 mg/l (21 day)

Toxicity to aquatic algae and cyanobacteria:

Freshwater algae EC50/LC50 >1640 mg/l (72 h)

Freshwater algae EC50 82 mg/l (72 h) Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

Toxicity to microorganisms:

Microorganisms EC50/LC50 >100 mg/l (3 h)

Long-term toxicity to aquatic invertebrates:

NOEC, 32 mg/l, Daphnia magna Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

Toxicity to soil organisms:

NOEC 18 mg/kg, Lactuca sativa (OECD directive 208) Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

12.2. Persistence and degradability

Not readily biodegradable. Inherently biodegradable. Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

12.3. Bioaccumulative potential

Not bioaccumulative. Tris(2-chloro-1-methyl-ethyl) phosphate (CAS 13674-84-5)

12.4. Mobility in soil:

The absorption factor is 174 for TCPP, which means a moderate absorption potential.

12.5. Results of PBT and vPvB assessment:

The mixture is not PBT and vPvB.

12.6. Other adverse effects: It is not expected that the components have an effect on global warming, ozone depletion in the stratosphere or ozone formation in the troposphere.

SECTION 13. Disposal considerations

13.1. Waste treatment methods: The products becoming useless and the contaminated containers not suitable for product storage must be handled as hazardous waste in accordance with EU and regional hazardous waste regulations.

European Waste Catalogue code: 08 05 01

13.1.1. Product / Packaging disposal: Contaminated packaging should be emptied as far as possible; than it can be passed on for recycling after being thoroughly cleaned. Wrappings cleaned from contamination with suitable cleaning process (e.g. by steaming, treating with washing fluid, etc.) must be considered as non hazardous waste.

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13.1.2. **Waste treatment options:** Incinerate in suitable incineration plant, observing local authority regulations.

SECTION 14. Transport information

Land transport (ADR/RID/GGVSE)

Sea transport (IMGD-Code/GGVSee)

Air transport (ICAO-IATA/DGR)

- 14.1. UN number: Not dangerous goods
14.2. UN proper shipping name: Not dangerous goods
14.3. Transport hazard class(es): Not dangerous goods
14.4. Packaging group: Not dangerous goods
14.5. Environmental hazards: Marine pollutant: no
14.6. Special precautions for users: EmS number: Not dangerous goods
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not relevant.
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SECTION 15. Regulatory information

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

15.1.1 **Information regarding relevant Community safety, health and environmental provisions:** Polymeric MDI is not listed in Annex I of Directive 96/82/EC (Seveso II).

15.1.2. EU regulations

- COUNCIL DIRECTIVE of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (67/548/EEC).
- 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.
- 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.
- Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances.
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
- International Chemical Safety Cards (WHO/IPCS/ILO)
- ISOPA guidelines (www.isopa.org)
- MDI&TDI Safety, Health and Environment, John Wiley & Sons Ltd. 2003
- ESIS - European Chemical Substances Information System (<http://ecb.jrc.ec.europa.eu/esis>)

15.1.3. National regulations

Carc. 3: Category 3: Substances which cause concern for man owing to possible carcinogenic effects but in respect of which the available information is not adequate for making a satisfactory assessment.

Based on the existing data, classification according to a causal relationship between human exposure to the substance and impaired fertility is not possible.

Based on the existing data, classification according to a causal relationship between human exposure to the substance and mutagenity is not possible.

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Contains Isocyanate. Note the advices of producer.

15.2. Chemical Safety Assessment

In accordance with REACH Chemical Safety Assessment has not been carried out for the substance.

SECTION 16. Other information

The information given corresponds with our actual knowledge and experience. This information is meant to describe our product in view of possible safety requirements.

16.1. Indication of changes: This version replaces all previous versions.

16.2. Abbreviations and acronyms:

bw: body weight

CAS number: Chemical Abstracts Service number

CLP: Classification Labelling Packaging Regulation

EC: European Commission

EC number: EINECS and ELINCS number

EC50: Half maximal effective concentration

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

LC50: Lethal concentration, 50 %

LD50: Median Lethal dose

LOAEC: Lowest Observed Adverse Effect Concentration

NOAEC: No Observed Adverse Effect Concentration

NOEC: No Observed Effect Concentration

OECD: Organisation for Economic Cooperation and Development

PBT: Persistent, Bioaccumulative and Toxic

P-MDI: Polymethylene polyphenyl poliisocyanate

REACH: The Registration, Evaluation, Authorisation and Restriction of Chemicals

STOT: Specific Target Organ Toxicity

TWA value: Time Weighted Average value

vPvB: Very Persistent and Very Bioaccumulative

16.3. Key literature references and sources for data: safety data sheets, received from the raw materials suppliers.

16.4. Full text of abbreviations**Hazard symbol(s)**

| | |
|-------|-------------------------------|
| Xn | Harmful |
| Xi | Irritant |
| Carc. | Carcinogenic |
| Repr. | Reproductive toxicity |
| N | Dangerous for the environment |

R-Phrases

| | |
|-----------|--|
| R20 | Harmful by inhalation |
| R22 | Harmful if swallowed |
| R36/37/38 | Irritating to eyes, respiratory system and skin |
| R40 | Limited evidence of a carcinogenic effect |
| R42/43 | May cause sensitisation by inhalation and skin contact |

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| | |
|--------|--|
| R43 | May cause sensitisation by skin contact |
| R48/20 | Harmful: danger of serious damage to health by prolonged exposure through inhalation |
| R48/22 | Harmful: danger of serious damage to health by prolonged exposure if swallowed |
| R51/53 | Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| R52/53 | Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| R62 | Possible risk of impaired fertility |
| R63 | Possible risk of harm to the unborn child |

H- Phrases

| | |
|------|---|
| H302 | Harmful if swallowed |
| H315 | Causes skin irritation |
| H317 | May cause an allergic skin reaction |
| H319 | Causes serious eye irritation |
| H332 | Harmful if inhaled |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H411 | Toxic to aquatic life with long lasting effects |
| H412 | Harmful to aquatic life with long lasting effects |
| H413 | May cause long lasting harmful effects to aquatic life |

Hazard classes

| | |
|-----------------|--|
| Acute Tox. | Acute Toxicity |
| Aquatic Chronic | Hazardous to the aquatic environment |
| Carc. | Carcinogenicity |
| Eye irrit. | Serious eye irritation |
| Repr. | Reproductive toxicity |
| Resp. Sens. | Respiratory sensitization |
| Skin Irrit. | Skin irritation |
| Skin Sens. | Skin sensitization |
| STOT RE | Specific target organ toxicity – repeated exposure |
| STOT SE | Specific target organ toxicity – single exposure |