

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)
Revision date : 06.03.2023
Print date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

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

1.1 Product identifier

PUR-Härter 5770, Farblos
(5770.-.0011)

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

Hardener for 2C-PUR-paints

Relevant identified uses

Products Category [PC]

Coatings and paints, thinners, paint removers

Remark

The product is intended for professional use. It is not suitable for use in do-it-yourself applications.

1.3 Details of the supplier of the safety data sheet

Supplier

Brillux GmbH & Co. KG, Industrielack
www.brillux-industrielack.de

Street : Otto-Hahn-Straße 14

Postal code/City : D-59423 Unna (Germany)

Telephone : +49 2303 8805-0

Telefax : +49 2303 8805-119

Information contact : E-mail address of the competent person for safety data sheets: sdb@brillux-industrielack.de

1.4 Emergency telephone number

Giftinformationszentrum-Nord (poisons centre), consultation in german and english
Telephone: +49 551 19 24 0

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

Flam. Liq. 3 ; H226 - Flammable liquids : Category 3 ; Flammable liquid and vapour.

Acute Tox. 4 ; H332 - Acute toxicity (inhalative) : Category 4 ; Harmful if inhaled.

Skin Irrit. 2 ; H315 - Skin corrosion/irritation : Category 2 ; Causes skin irritation.

Eye Irrit. 2 ; H319 - Serious eye damage/eye irritation : Category 2 ; Causes serious eye irritation.

Skin Sens. 1 ; H317 - Skin sensitisation : Category 1 ; May cause an allergic skin reaction.

STOT SE 3 ; H335 - STOT-single exposure : Category 3 ; May cause respiratory irritation.

STOT RE 2 ; H373 - STOT-repeated exposure : Category 2 ; May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Flame (GHS02) · Health hazard (GHS08) · Exclamation mark (GHS07)

Signal word

Warning

Safety Data Sheet

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Hazard components for labelling

HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2

REACTION MASS OF ETHYLBENZENE AND XYLENE

HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0

Hazard statements

- H226 Flammable liquid and vapour.
H373 May cause damage to organs through prolonged or repeated exposure.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statements

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P312 Call a POISON CENTER or a doctor if you feel unwell.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Special rules for supplemental label elements for certain mixtures

- EUH204 Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria. The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous ingredients

HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; REACH No. : 01-2119488934-20 ; EC No. : 500-060-2; CAS No. : 28182-81-2

Weight fraction : $\geq 75 - < 80$ %
Classification 1272/2008 [CLP] : Acute Tox. 4 ; H332 Skin Sens. 1 ; H317 STOT SE 3 ; H335

2-METHOXY-1-METHYLETHYL ACETATE ; REACH No. : 01-2119475791-29 ; EC No. : 203-603-9; CAS No. : 108-65-6

Weight fraction : $\geq 10 - < 15$ %
Classification 1272/2008 [CLP] : Flam. Liq. 3 ; H226 STOT SE 3 ; H336

REACTION MASS OF ETHYLBENZENE AND XYLENE ; REACH No. : 01-2119486136-34 ; EC No. : 905-588-0

Weight fraction : $\geq 10 - < 15$ %
Classification 1272/2008 [CLP] : Flam. Liq. 3 ; H226 Asp. Tox. 1 ; H304 STOT RE 2 ; H373 Acute Tox. 4 ; H312 Acute Tox. 4 ; H332 Skin Irrit. 2 ; H315 Eye Irrit. 2 ; H319 STOT SE 3 ; H335

HEXAMETHYLENE-DI-ISOCYANATE ; REACH No. : 01-2119457571-37 ; EC No. : 212-485-8; CAS No. : 822-06-0

Weight fraction : $\geq 0,1 - < 0,5$ %
Classification 1272/2008 [CLP] : Acute Tox. 2 ; H330 Resp. Sens. 1 ; H334 Acute Tox. 4 ; H302 Skin Irrit. 2 ; H315 Skin Sens. 1 ; H317 Eye Irrit. 2 ; H319 STOT SE 3 ; H335

Specific Conc. Limits : Resp. Sens. 1 ; H334: C $\geq 0,5$ % • Skin Sens. 1 ; H317: C $\geq 0,5$ %

Additional information

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

Safety Data Sheet

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SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Change contaminated, saturated clothing. When in doubt or if symptoms are observed, get medical advice. If unconscious but breathing normally, place in recovery position and seek medical advice.

Following inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration. In case of respiratory tract irritation, consult a physician.

In case of skin contact

Wash immediately with: Water and soap Do not wash with: Solvents/Thinner

After eye contact

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

Following ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Keep at rest. Do NOT induce vomiting. No direct artificial respiration to be given by first aider.

4.2 Most important symptoms and effects, both acute and delayed

No information available.

4.3 Indication of any immediate medical attention and special treatment needed

None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguishing powder, alcohol resistant foam, carbon dioxide (CO₂), water spray.

Unsuitable extinguishing media

Full water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Formation of toxic gases is possible during heating or in case of fire: Carbon monoxide (CO.), nitrogen oxide (NO_x), vapour of isocyanate and traces of hydrogen cyanide (HCN).

5.3 Advice for firefighters

Special protective equipment for firefighters

Use suitable breathing apparatus.

5.4 Additional information

Burning produces heavy smoke. Use water spray jet to protect personnel and to cool endangered containers. Do not allow run-off from fire-fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. See protective measures under point 7 and 8.

6.2 Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up

Absorb with liquid binding material (i.e. sand, kieslgur, universal binder or sawdust). After approx. 1 hour put in waste container but do not close (CO₂ development). Treat the recovered material as prescribed in the section on waste

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disposal. Clean with detergents. Avoid solvent cleaners.

6.4 Reference to other sections

None

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

The threshold limit values noted in Chapter 8 must be monitored. Avoid: Inhalation of vapours or spray/mists, Skin contact, Eye contact. If handled uncovered, arrangements with local exhaust ventilation should be used if possible. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means. The air should be drawn away from the personnel handling the product. Never use pressure to empty container. Only allow access to authorised staff.

Measures to prevent fire

Keep away from sources of ignition - No smoking. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Take precautionary measures against static discharges. Wear anti-static footwear and clothing Use only antistatically equipped (spark-free) tools.

Advices on general occupational hygiene

Wear personal protection equipment (refer to section 8). Keep working clothes separately. Immediately remove all contaminated clothing. When using do not eat, drink, smoke, sniff. Always close containers tightly after the removal of product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Use explosion-proof machinery, apparatus, ventilation facilities, tools etc. Floors should be impervious, resistant to liquids and easy to clean. Provide adequate ventilation as well as local exhaustion at critical locations. Keep container tightly closed. In case of air intake: Danger of polymerisation.

Hints on joint storage

Storage class (TRGS 510) : 3

Do not store together with

Strong acid, strong alkali, oxidising agent, food and feedingstuffs.

Further information on storage conditions

Keep only in the original container in a cool, well-ventilated place.

Protect against : Heat. Humidity.

7.3 Specific end use(s)

Hardener for 2C-PUR-paints

Industrial sector specific solutions

Note DGUV-Rule 100-500, section 2.29 (processing coating materials).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6

Limit value type (country of origin) : TRGS 900 (D)

Limit value : 50 ppm / 270 mg/m³

Peak limitation : 1(I)

Remark : Y

Version : 02.07.2021

Limit value type (country of origin) : STEL (EC)

Limit value : 100 ppm / 550 mg/m³

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Version (Revision) : 30.1.0 (30.0.0)

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Remark : Skin
Version : 20.06.2019
Limit value type (country of origin) : TWA (EC)
Limit value : 50 ppm / 275 mg/m³
Remark : Skin
Version : 20.06.2019

REACTION MASS OF ETHYLBENZENE AND XYLENE

Limit value type (country of origin) : TRGS 900 (D)
Limit value : 100 ppm / 440 mg/m³
Peak limitation : 4
Remark : Xylol
Version : 01.10.1993

Limit value type (country of origin) : TRGS 900 (D)
Limit value : 20 ppm / 88 mg/m³
Peak limitation : 2(II)
Remark : Ethylbenzol H, Y, DFG
Version : 01.10.1993

Limit value type (country of origin) : STEL (EC)
Limit value : 200 ppm / 884 mg/m³
Remark : Ethylbenzol H
Version :

Limit value type (country of origin) : TWA (EC)
Limit value : 100 ppm / 442 mg/m³
Remark : Ethylbenzol H
Version :

HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0

Limit value type (country of origin) : TRGS 900 (D)
Limit value : 0,005 ppm / 0,035 mg/m³
Peak limitation : 1/=2=(I)
Remark : Sa
Version : 02.07.2021

Remark

Exposition assessment value (EBW) per TGRS 430: Polyisocyanate content (HDI oligomers and/or prepolymers) 75 % . Use an exposition assessment value of 0,5 mg/m³.

Biological limit values

REACTION MASS OF ETHYLBENZENE AND XYLENE

Limit value type (country of origin) : TRGS 903 (D)
Parameter : Xylene / Whole blood (B) / End of exposure or end of shift
Limit value : 0,15 mg/dl
Remark : Xylol
Version : 01.10.1993

Limit value type (country of origin) : TRGS 903 (D)
Parameter : Methylhippuric (toluric) acid (all isomers) / Urine (U) / End of exposure or end of shift
Limit value : 2 g/l
Remark : Xylol
Version : 01.10.1993

Limit value type (country of origin) : TRGS 903 (D)
Parameter : Ethylbenzene / Whole blood (B) / End of exposure or end of shift
Limit value : 1 mg/l
Remark : Ethylbenzol
Version : 01.10.1993

Limit value type (country of origin) : TRGS 903 (D)
Parameter : Mandelic acid plus phenylglyoxylic acid / Urine (U) / End of exposure or end of shift

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Limit value : 800 mg/g Creatinine
Remark : Ethylbenzol
Version : 01.10.1993
HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0
Limit value type (country of origin) : TRGS 903 (D)
Parameter : Hexamethylenediamine (after hydrolysis) / Urine (U) / End of exposure or end of shift
Limit value : 0,15 mg/g Creatinine
Version : 04.05.2021

DNEL-/PNEC-values

DNEL/DMEL

HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2

Limit value type : DNEL/DMEL (Worker)

Exposure route : Inhalation

Exposure frequency : Short-term

Limit value : 0,7 mg/m³

Limit value type : DNEL/DMEL (Worker)

Exposure route : Inhalation

Exposure frequency : Long-term

Limit value : 0,35 mg/m³

REACTION MASS OF ETHYLBENZENE AND XYLENE

Limit value type : DNEL Consumer (local)

Exposure route : Inhalation

Exposure frequency : Long-term

Limit value : = 65,3 mg/m³

Limit value type : DNEL Consumer (local)

Exposure route : Inhalation

Exposure frequency : Short-term

Limit value : = 260 mg/m³

2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6

Limit value type : DNEL/DMEL (Consumer)

Exposure route : Dermal

Exposure frequency : Long-term

Limit value : 54,8 mg/kg

Limit value type : DNEL/DMEL (Consumer)

Exposure route : Inhalation

Exposure frequency : Long-term

Limit value : 33 mg/m³

Limit value type : DNEL/DMEL (Consumer)

Exposure route : Oral

Exposure frequency : Long-term

Limit value : 1,67 mg/kg

REACTION MASS OF ETHYLBENZENE AND XYLENE

Limit value type : DNEL Consumer (systemic)

Exposure route : Oral

Exposure frequency : Long-term

Limit value : = 1,6 mg/kg

Assessment factor : 1 D

Limit value type : DNEL Consumer (systemic)

Exposure route : Inhalation

Exposure frequency : Long-term

Limit value : = 14,8 mg/m³

Limit value type : DNEL Consumer (systemic)

Exposure route : Inhalation

Exposure frequency : Short-term

Safety Data Sheet

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Limit value : = 260 mg/m³
2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6
Limit value type : DNEL/DMEL (Industrial)
Exposure route : Inhalation
Exposure frequency : Long-term
Limit value : 275 mg/m³
Limit value type : DNEL/DMEL (Industrial)
Exposure route : Dermal
Exposure frequency : Long-term
Limit value : 153,5 mg/kg
REACTION MASS OF ETHYLBENZENE AND XYLENE
Limit value type : DNEL worker (local)
Exposure route : Inhalation
Exposure frequency : Short-term
Limit value : = 289 mg/m³
Limit value type : DNEL worker (local and systemic)
Exposure route : Inhalation
Exposure frequency : Long-term
Limit value : = 221 mg/m³
Limit value type : DNEL worker (systemic)
Exposure route : Inhalation
Exposure frequency : Long-term
Limit value : = 211 mg/m³
Limit value type : DNEL worker (systemic)
Exposure route : Inhalation
Exposure frequency : Short-term
Limit value : = 442 mg/m³
Limit value type : DNEL worker (systemic)
Exposure route : Dermal
Exposure frequency : Long-term
Limit value : = 180 mg/kg
Assessment factor : 1 D
HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0
Limit value type : DNEL/DMEL (Industrial)
Exposure route : Dermal
Exposure frequency : Short-term
Limit value type : DNEL/DMEL (Industrial)
Exposure route : Inhalation
Exposure frequency : Short-term
Limit value : 0,07 mg/m³
Limit value type : DNEL/DMEL (Industrial)
Exposure route : Inhalation
Exposure frequency : Long-term
Limit value : 0,035 mg/m³

PNEC

HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2
Limit value type : PNEC (Aquatic, freshwater)
Exposure route : Water (Including sewage plant)
Limit value : 0,1 mg/l
Limit value type : PNEC Intermittierende Einleitung
Exposure route : Water (Including sewage plant)
Limit value : 1 mg/l
Limit value type : PNEC (Aquatic, marine water)
Exposure route : Water (Including sewage plant)
Limit value : 0,01 mg/l

Safety Data Sheet
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(5770.-.0011)

Revision date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

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Limit value type : PNEC (Sediment, freshwater)
Exposure route : Soil
Limit value : 2530 mg/kg
Limit value type : PNEC (Sediment, marine water)
Exposure route : Soil
Limit value : 253 mg/kg
Limit value type : PNEC soil
Exposure route : Soil
Limit value : 505 mg/kg
Limit value type : PNEC (Sewage treatment plant)
Exposure route : Water (Including sewage plant)
Limit value : 100 mg/l
2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6
Limit value type : PNEC (Aquatic, freshwater)
Exposure route : Water (Including sewage plant)
Limit value : 0,635 mg/l
REACTION MASS OF ETHYLBENZENE AND XYLENE
Limit value type : PNEC (Aquatic, freshwater)
Exposure route : Water (Including sewage plant)
Limit value : 0,327 mg/l
Limit value type : PNEC (Aquatic, marine water)
Exposure route : Water (Including sewage plant)
Limit value : = 0,327 mg/l
2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6
Limit value type : PNEC (Aquatic, marine water)
Exposure route : Water (Including sewage plant)
Limit value : 0,0635 mg/l
Limit value type : PNEC (Sediment, freshwater)
Exposure route : Soil
Limit value : 3,29 mg/kg
REACTION MASS OF ETHYLBENZENE AND XYLENE
Limit value type : PNEC (Sediment, freshwater)
Exposure route : Water (Including sewage plant)
Limit value : 12,64 mg/kg
Limit value type : PNEC (Sediment, marine water)
Exposure route : Water (Including sewage plant)
Limit value : = 12,64 mg/kg
2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6
Limit value type : PNEC (Sediment, marine water)
Exposure route : Soil
Limit value : 0,329 mg/kg
Limit value type : PNEC soil
Exposure route : Soil
Limit value : 29 mg/kg
REACTION MASS OF ETHYLBENZENE AND XYLENE
Limit value type : PNEC soil
Exposure route : Soil
Limit value : 2,31 mg/kg
Limit value type : PNEC (Sewage treatment plant)
Exposure route : Water (Including sewage plant)
Limit value : 6,58 mg/l
2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6
Limit value type : PNEC (Sewage treatment plant)
Exposure route : Water (Including sewage plant)
Limit value : 100 mg/l

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)
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Version (Revision) : 30.1.0 (30.0.0)

8.2 Exposure controls

Personal protection equipment

Eye/face protection

Suitable eye protection

goggles

Recommended eye protection articles

EN 166

Remark

Note DGUV-Rule 112-192.

Skin protection

Hand protection

At use as agreed a protective gloves from nitrile rubber with a material thickness 0,38 mm has to be used. Notes of the manufacturer have to be taken into account. Penetration time of the glove material: > = 60 min.

By longer or repeated contact the penetration times can be considerably shorter. The protective gloves should be replaced after the first wear out or a damage of the gloves.

Remark : After washing hands replace lost skin fat by fat containing skin creams. Note DGUV-Rule 112-195. Note TRGS 401.

Body protection

Required properties : Antistatic, non-melting.

Recommended material : Natural fibres (e.g. cotton), heat-resistant synthetic fibres.

Remark : Note DGUV-Rule 112-189. Note TRGS 401.

Respiratory protection

Respiratory protection necessary at: Insufficient ventilation, insufficient exhaust or spray application.

Suitable respiratory protection apparatus

Combination filter mask A2-P2 for short-term work.

European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

Remark

Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190). Note TRGS 402.

Other protection measures

Technical measures and the application of suitable work processes have priority over personal protection equipment.

8.3 Additional information

In case of hypersensitivity of the respiratory tract and skin (e.g. asthmatics and those who suffer from chronic bronchitis and chronic skin complaint) it is inadvisable to work with the product.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid

Colour : According to product identification.

Odour

Like solvent.

Safety characteristics

Melting point/freezing point : not applicable

Initial boiling point and boiling range : (1013 hPa) > 120 °C

Decomposition temperature : No data available

Flash point : > 23 °C

Auto-ignition temperature : approx. 460 °C

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Lower explosion limit :			1	Vol-%
Upper explosion limit :			10,6	Vol-%
Vapour pressure :	(50 °C)	<	50	hPa
Density :	(20 °C)		1 - 1,1	g/cm ³
Solvent separation test :	(20 °C)	<	3	%
Water solubility :	(20 °C)		practically insoluble	
pH :			No data available	
log P O/W :			No data available	
Flow time :	(20 °C)		50 - 60	s DIN-cup 4 mm
Viscosity :	(23 °C)	approx.	250	mPa*s
Cinematic viscosity :	(40 °C)	>	20,5	mm ² /s
Solid content :		approx.	75	Weight-%
Odour threshold :			not relevant	
Relative vapour density :	(20 °C)		No data available	
Vapourisation rate :			No data available	
Oxidising liquids :	Not oxidising.			

9.2 Other information

The physical specifications are approximate values and refer to the used safety relevant component(s).

SECTION 10: Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

CO₂ formation by penetration of the container with moisture.

10.3 Possibility of hazardous reactions

Exothermic reaction with alcohols and amines. With water gradual CO₂ separation. Build-up of pressure in closed containers: Danger that they might burst.

10.4 Conditions to avoid

In case of air intake: Danger of polymerisation.

10.5 Incompatible materials

No information available.

10.6 Hazardous decomposition products

When exposed to high temperatures (> 200 °C) or in case of fire hazardous decomposition products such as carbon monoxide and dioxide, smoke, oxides of nitrogen may produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Parameter :	ATEmix calculated
Exposure route :	Oral
Effective dose :	not relevant
Parameter :	LD50 (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)
Exposure route :	Oral
Species :	Rat
Effective dose :	> 5665 mg/kg
Parameter :	LD50 (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Exposure route :	Oral
Species :	Rat
Effective dose :	3523 - 4000 mg/kg

Safety Data Sheet

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Parameter : LD50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Exposure route : Oral
Species : Rat
Effective dose : 8500 mg/kg
Parameter : LD50 (HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0)
Exposure route : Oral
Species : Rat
Effective dose : 710 mg/kg

Acute dermal toxicity

Parameter : ATEmix calculated
Exposure route : Dermal
Effective dose : 98585 mg/kg
Parameter : LD50 (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)
Exposure route : Dermal
Species : Rat
Effective dose : > 2000 mg/kg
Parameter : LD50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Exposure route : Dermal
Species : Rat
Effective dose : > 5000 mg/kg
Parameter : LD50 (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Exposure route : Dermal
Species : Rabbit
Effective dose : 12126 mg/kg
Parameter : LD50 (HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0)
Exposure route : Dermal
Species : Rabbit
Effective dose : 570 mg/kg

Acute inhalation toxicity

Parameter : ATEmix calculated
Exposure route : Inhalation (vapour)
Effective dose : 11,4 mg/l
Parameter : ATEmix calculated (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)
Exposure route : Inhalation (dust/mist)
Effective dose : 1,5 mg/l
Parameter : LC50 (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Exposure route : Inhalation (vapour)
Species : Rat
Effective dose : 10 - 20 mg/l
Exposure time : 4 h
Parameter : LC50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Exposure route : Inhalation
Species : Rat
Effective dose : 35,7 mg/l
Parameter : LC50 (HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0)
Exposure route : Inhalation
Species : Rat
Effective dose : 0,124 mg/l
Exposure time : 4 h
Parameter : LC50 (HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0)
Exposure route : Inhalation
Species : Mouse
Effective dose : 1,57 mg/l

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)
Revision date : 06.03.2023
Print date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Corrosion

Irritation to respiratory tract

May cause respiratory irritation.

STOT-single exposure

STOT SE 3

Narcotic effects

Vapours may cause drowsiness and dizziness.

11.3 Symptoms related to the physical, chemical and toxicological characteristics

In case of skin contact

Repeated exposure may cause skin dryness or cracking.

11.5 Additional information

Special properties/effects: Over-exposure entails the risk of concentration-dependent irritating effects on eyes, nose throat, and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations, including concentrations below the UK Workplace Exposure Limit (WEL). Prolonged contact with the skin may cause tanning and irritant effects.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity

Acute (short-term) fish toxicity

Parameter : LC50 (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)

Species : Danio rerio (zebrafish)

Effective dose : > 100 mg/l

Exposure time : 96 h

Parameter : LC50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)

Species : Oryzias latipes (Ricefish)

Effective dose : > 100 mg/l

Exposure time : 96 h

Parameter : LC50 (REACTION MASS OF ETHYLBENZENE AND XYLENE)

Species : Acute (short-term) fish toxicity

Evaluation parameter : Oncorhynchus mykiss

Effective dose : = 2,6 mg/l

Exposure time : 96 h

Parameter : LC50 (HEXAMETHYLENE-DI-ISOCYANATE ; CAS No. : 822-06-0)

Species : Danio rerio (zebrafish)

Effective dose : 22 mg/l

Exposure time : 96 h

Chronic (long-term) fish toxicity

Parameter : NOEC (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)

Species : Oryzias latipes (Ricefish)

Effective dose : 47,5 mg/l

Exposure time : 14 D

Acute (short-term) toxicity to crustacea

Parameter : EC50 (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)

Species : Daphnia magna (Big water flea)

Effective dose : > 100 mg/l

Exposure time : 48 h

Parameter : EC50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)

Species : Daphnia magna (Big water flea)

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)

Revision date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Print date : 06.03.2023

Effective dose : > 500 mg/l
Exposure time : 48 h
Parameter : LC50 (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Species : Acute (short-term) toxicity to crustacea
Evaluation parameter : Daphnia magna
Effective dose : = 1 mg/l
Exposure time : 24 h

Chronic (long-term) toxicity to aquatic invertebrate

Parameter : NOEC (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Species : Daphnia magna (Big water flea)
Effective dose : > 100 mg/l
Exposure time : 21 D

Acute (short-term) toxicity to algae and cyanobacteria

Parameter : ErC50 (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)
Species : Scenedesmus subspicatus
Effective dose : 50 - 100 mg/l
Exposure time : 72 h
Parameter : EC50 (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Species : Scenedesmus capricornutum
Evaluation parameter : Acute (short-term) toxicity to algae and cyanobacteria
Effective dose : = 2,2 mg/l
Exposure time : 73 h
Parameter : ErC50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Species : Pseudokirchneriella subcapitata
Effective dose : > 1000 mg/l
Exposure time : 3 h

Toxicity to microorganisms

Parameter : EC50 (HEXAMETHYLENE-1,6-DIISOCYANATE, HOMOPOLYMER ; CAS No. : 28182-81-2)
Species : Mysisopsis bahia
Effective dose : 5560 mg/l
Parameter : EC50 (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Species : Mysisopsis bahia
Effective dose : > 1000 mg/l
Exposure time : 0,5 h

Sewage treatment plant

Parameter : Effects in sewage plants (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Inoculum : Activated sludge
Effective dose : = 16 mg/l
Exposure time : 28 D

12.2 Persistence and degradability

Is converted in connection with water in a solid, insoluble and inert polyurea, liberating CO₂.

Biodegradation

Parameter : Biodegradation (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)
Inoculum : Biodegradation
Degradation rate : 100 %
Test duration : 8 D
Parameter : Biodegradation (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Inoculum : Biodegradation
Evaluation parameter : Aerobic
Degradation rate : = 90 %
Test duration : 28 D
Parameter : Biodegradation (2-METHOXY-1-METHYLETHYL ACETATE ; CAS No. : 108-65-6)

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)
Revision date : 06.03.2023
Print date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Inoculum : Biodegradation
Degradation rate : > 90 %
Test duration : 28 D

The solvent is biodegradable. In accordance with the required stability the product is poorly biodegradable.

12.3 Bioaccumulative potential

Parameter : Bioconcentration factor (BCF) (REACTION MASS OF ETHYLBENZENE AND XYLENE)
Bioconcentration factor (BCF)
Value : = 25,9

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6 Other adverse effects

No information available.

12.7 Additional ecotoxicological information

Additional information

Do not allow uncontrolled discharge of product into the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Dispose of waste according to applicable legislation.

Directive 2008/98/EC (Waste Framework Directive)

Before intended use

Waste codes/waste designations according to EWC/AVV

08 05 01* (Waste isocyanates)

After intended use

Waste codes/waste designations according to EWC/AVV

Uncleaned packaging: 15 01 10* (Packaging containing residues of or contaminated by dangerous substances)

Cleaned packaging: 15 01 04 (Metallic packaging)

Other disposal recommendations

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

13.2 Additional information

Note sections 7 and 8.

SECTION 14: Transport information

14.1 UN number

UN 1866

14.2 UN proper shipping name

Land transport (ADR/RID)

RESIN SOLUTION

Sea transport (IMDG)

RESIN SOLUTION

Air transport (ICAO-TI / IATA-DGR)

RESIN SOLUTION

14.3 Transport hazard class(es)

Land transport (ADR/RID)

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)
Revision date : 06.03.2023
Print date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Class(es) : 3
Classification code : F1
Hazard identification number (Kemler No.) : 30
Tunnel restriction code : D/E
Special provisions : LQ 5 I · E 1
Hazard label(s) : 3
Sea transport (IMDG)
Class(es) : 3
EmS-No. : F-E / S-E
Special provisions : LQ 5 I · E 1
Hazard label(s) : 3
Air transport (ICAO-TI / IATA-DGR)
Class(es) : 3
Special provisions : E 1
Hazard label(s) : 3

14.4 Packing group

III

14.5 Environmental hazards

Land transport (ADR/RID) : No
Sea transport (IMDG) : No
Air transport (ICAO-TI / IATA-DGR) : No

14.6 Special precautions for user

None

SECTION 15: Regulatory information

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

EU legislation

Authorisations and/or restrictions on use

Restrictions on use

As from 24 August 2023 adequate training is required before industrial or professional use.

Use restriction according to REACH annex XVII, no. : 3, 40, 74, 75

Restrictions of occupation

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National regulations

Technische Anleitung Luft (TA-Luft)

Weight fraction (Number 5.2.5. I) : < 0,5 %

Water hazard class

Classification according to AwSV - Class : 2 (Obviously hazardous to water)

Other regulations, restrictions and prohibition regulations

Note TRGS 001. Note TRGS 400. Note TRGS 430 - isocyanate. Note BG RCI M 044 (BGI 524) "Polyurethan-production and processing / Isocyanate" and M 017 (BGI 621) "Solvents".

Additional information

Berufsgenossenschaftliche Vorschriften (DGUV-Vorschriften)

Product code in accordance to GISBAU (hazardous materials information system of the German professional associations of the building and construction industry): PU50.

15.2 Chemical Safety Assessment

A chemical safety assessment has not been carried out.

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)

Revision date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Print date : 06.03.2023

15.3 Additional information

The European Committee of Paint, Printing Ink and Artists' Colours Manufacturers' Associations (CEPE) provides the following information on coatings containing isocyanates: Ready-to-use paints containing isocyanates may have an irritant effect on mucous membranes - especially on breathing organs - and cause hypersensitivity reactions. Inhalation of vapor or spray mist may cause sensitisation. When handling paints containing isocyanates all precautions required for solvent-containing paints must be followed. Vapor and spray mist in particular should not be inhaled. Allergics and asthmatics as well as people prone to respiratory ailments should not work with isocyanate containing paints.

SECTION 16: Other information

16.1 Indication of changes

None

16.2 Abbreviations and acronyms

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
ADR: European agreement concerning the international carriage of dangerous goods by road (Accord européen relatif transport des marchandises dangereuses par route)
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany) AOX: Adsorbable Organic halogen compounds
ATEmix: Calculated acute toxicity estimate of mixture
BCF: Bio-Concentration Factor
CAS: Chemical Abstract Service
CLP: Classification, Labelling and Packaging
CMR: Substances classified as Carcinogenic, Mutagenic or toxic for Reproduction
CSR: Chemical Safety Report
DNEL: Derived No Effect Level
EC: European Commission
EC50: Effective Concentration 50%
ECHA: European Chemical Agency
EEC: European Economic Community
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
EWC: European Waste Catalogue
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IC50: Inhibition Concentration 50%
IMDG Code: International Maritime Dangerous Goods Code
IMO: International Maritime Organization
LC50: Lethal concentration 50%
LD50: Lethal Dose 50%
LOAEL: Lowest Observed Adverse Effect Level
LOEL: Lowest observable effect level
MAK: Treshold limit values Germany (Maximale Arbeitsplatzkonzentration - DFG)
MARPOL: Convention for the Prevention of Marine Pollution from Ships
MVZ: molar ratio
n.a.: Not applicable
n.d.: Not determined
n.r.: Not relevant
NLP: No Longer Polymers
NOAEC: No Observed Adverse Effect Concentration
NOAEL: No Observed Adverse Effect Level
NOEC: No Observed Effect Concentration
NOEL: No Observed Effect Level
OEL: Occupational Exposure Limit
PBT: Persistent, bioaccumulative, toxic
PNEC: Predicted No Effect Concentration
RCP: Reciprocal calculation procedure

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)

Revision date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Print date : 06.03.2023

REACH: Registration, Evaluation and Authorization of Chemical
RID: Regulations concerning the international carriage of dangerous goods by rail (Règlement International concernant le transport de marchandises dangereuses par chemin de fer)
STEL: Short-term Exposure Limit
SVHC: Substance of Very High Concern
TLV - TWA: Threshold Limit Value - Time Weighted Average
VOC: Volatile Organic Compounds
vPvB: Very persistent, very bioaccumulative.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
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AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany) AOX: Adsorbable Organic halogen compounds
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EC50: Effective Concentration 50%
ECHA: European Chemical Agency
EEC: European Economic Community
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
EWC: European Waste Catalogue
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
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IMO: International Maritime Organization
LC50: Lethal concentration 50%
LD50: Lethal Dose 50%
LOAEL: Lowest Observed Adverse Effect Level
LOEL: Lowest observable effect level
MAK: Treshold limit values Germany (Maximale Arbeitsplatzkonzentration - DFG)
MARPOL: Convention for the Prevention of Marine Pollution from Ships
MVZ: molar ratio
n.a.: Not applicable
n.d.: Not determined
n.r.: Not relevant
NLP: No Longer Polymers
NOAEC: No Observed Adverse Effect Concentration
NOAEL: No Observed Adverse Effect Level
NOEC: No Observed Effect Concentration
NOEL: No Observed Effect Level
OEL: Occupational Exposure Limit
PBT: Persistent, bioaccumulative, toxic
PNEC: Predicted No Effect Concentration
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VOC: Volatile Organic Compounds

Safety Data Sheet

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



Trade name : PUR-Härter 5770, Farblos
(5770.-.0011)

Revision date : 06.03.2023

Version (Revision) : 30.1.0 (30.0.0)

Print date : 06.03.2023

vPvB: Very persistent, very bioaccumulative.

16.3 Key literature references and sources for data

None

16.4 Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Calculation method.

16.5 Relevant H- and EUH-phrases (Number and full text)

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.

16.6 Training advice

None

16.7 Additional information

None

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.
