Safety Data Sheet

acc. to GHS-GB

Aqua-Hardener 8452

Version number: 5.0

Revision: 2024-01-08
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name **Aqua-Hardener 8452 --> Bluefin Pigmores 4in1** **8452a:**

Product number 8452000210

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

Relevant identified uses: Hardener for water-based coating materials; for industrial or professional applications.

Uses advised against: Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
ADLER-Werk Lackfabrik Johann Berghofer GmbH & Co KG
Bergwerkstraße 22
A-6130 Schwaz
Austria

Telephone: +4352426922713
e-mail: sdb-info@adler-lacke.com

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Telephone
+43 5242 6922-713
Mon - Thu 07:00 AM - 04:25 PM
Fri 07:00 AM - 12:15 PM

1.4 Emergency telephone number

Country	Name	Telephone
United Kingdom	Guy's & St Thomas' Poisons Unit	+44 (0)20 7188 0100

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Hazard class	Category	Hazard class and category	Hazard statement
flammable liquid	3	Flam. Liq. 3	H226
acute toxicity (inhal.)	4	Acute Tox. 4	H332
skin corrosion/irritation	2	Skin Irrit. 2	H315
serious eye damage/eye irritation	2	Eye Irrit. 2	H319
skin sensitisation	1	Skin Sens. 1	H317
specific target organ toxicity - single exposure (respiratory tract irritation)	3	STOT SE 3	H335
specific target organ toxicity - single exposure (narcotic effects, drowsiness)	3	STOT SE 3	H336

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

- Signal word warning

- Pictograms

GHS02, GHS07

- Hazard statements

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

- Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist/vapours/spray.
P280	Wear protective gloves/eye protection/face protection.
P312	Call a POISON CENTRE/doctor if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents, container in accordance with national regulations.

- Supplemental hazard information

EUH204	Contains isocyanates. May produce an allergic reaction.

- Hazardous ingredients for labelling

hexamethylene-1,6-diisocyanate, oligomers, 2-methoxy-1-methylethyl acetate, (2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate, Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidenetrimethanol, m-tolylidene diisocyanate, hexamethylene diisocyanate, hydrophilic, aliphatic polyisocyanate

2.3 Other hazards

Keep out of reach of children and do not empty into the drains. Dispose remainders properly (collection of hazardous waste, disposal companies). Empty containers must be entered into the recycling system. The usual safety precautions must be observed during processing of the product.

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of ≥ 0,1%.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

Description of the mixture: Aliphatic polyisocyanate resin in organic solvents.

Name of substance	Identifier	Wt%	Classification acc. to GHS
hexamethylene-1,6-diisocyanate, oligomers	CAS No 28182-81-2 EC No 500-060-2 931-274-8	25 – < 50	Acute Tox. 4 / H332 Skin Sens. 1 / H317 STOT SE 3 / H335
(2,4,6-trioxotriazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	CAS No 3779-63-3 EC No 223-242-0	25 – < 50	Acute Tox. 4 / H332 Skin Sens. 1 / H317 STOT SE 3 / H335
2-methoxy-1-methylethyl acetate	CAS No 108-65-6 EC No 203-603-9 Index No 607-195-00-7	10 – < 25	Flam. Liq. 3 / H226 STOT SE 3 / H336
Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidenetrimethanol	CAS No 53317-61-6 EC No 500-120-8	5 – < 10	Eye Irrit. 2 / H319 Skin Sens. 1 / H317
hydrophilic, aliphatic polyisocyanate	CAS No 666723-27-9	3 – < 5	Acute Tox. 4 / H332 Skin Sens. 1 / H317 STOT SE 3 / H335 Aquatic Chronic 3 / H412
cyclohexyldimethylamine	CAS No 98-94-2 EC No 202-715-5	1 – < 3	Flam. Liq. 3 / H226 Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 Skin Corr. 1B / H314 Eye Dam. 1 / H318 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411
hexamethylene diisocyanate	CAS No 822-06-0 EC No 212-485-8 Index No 615-011-00-1	0.036 – < 0.1	Acute Tox. 3 / H331 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Resp. Sens. 1 / H334 Skin Sens. 1 / H317 STOT SE 3 / H335

Name of substance	Identifier	Wt%	Classification acc. to GHS
m-tolylidene diisocyanate	CAS No 26471-62-5 EC No 247-722-4 Index No 615-006-00-4	0.0015 – < 0.036	Acute Tox. 1 / H330 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Resp. Sens. 1 / H334 Skin Sens. 1 / H317 Carc. 2 / H351 STOT SE 3 / H335 Aquatic Chronic 3 / H412

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
hexamethylene-1,6-diisocyanate, oligomers	-	-	11 $^{mg}/_{l}$/4h 1.5 $^{mg}/_{l}$/4h	inhalation: vapour inhalation: dust/mist
(2,4,6-trioxotriazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	-	-	11 $^{mg}/_{l}$/4h 1.5 $^{mg}/_{l}$/4h	inhalation: vapour inhalation: dust/mist
hydrophilic, aliphatic polyisocyanate	-	-	11 $^{mg}/_{l}$/4h	inhalation: vapour
cyclohexyldimethylamine	-	-	>272 $^{mg}/_{kg}$ 380 $^{mg}/_{kg}$ 3 $^{mg}/_{l}$/4h	oral dermal inhalation: vapour
hexamethylene diisocyanate	Resp. Sens. 1; H334: C ≥ 0.5 % Skin Sens. 1; H317: C ≥ 0.5 %	-	3 $^{mg}/_{l}$/4h	inhalation: vapour
m-tolylidene diisocyanate	Resp. Sens. 1; H334: C ≥ 0.1 %	-	0.05 $^{mg}/_{l}$/4h	inhalation: vapour

For full text of abbreviations: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Take off immediately all contaminated clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician.

Following skin contact

Take off contaminated clothing. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap. Do not use any solvents or thinners!.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Keep at rest. IF SWALLOWED: Immediately call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2), BC-powder, Water spray, Alcohol resistant foam, Sand

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Thick smoke may occur in case of a fire. Inhaling the decomposed products may cause serious damage to health. The formation of explosive dust-air-mixtures is possible. Upon contact with air, the vapours may form an explosive mixture. . Combustible.

Hazardous combustion products

Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety. Provision of sufficient ventilation. Control of dust.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Fill contaminated material in the original container or any other suitable one and dispose it in accordance with point 13.

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Avoidance of ignition sources. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools.

- Specific notes/details

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours may form explosive mixtures with air.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.

- Flammability hazards

Keep away from sources of ignition - No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. Ground/bond container and receiving equipment. Protect from sunlight.

Control of effects

Do not pierce or burn, even after use. Protect from sunlight. Store in a well-ventilated place. Protect from sunlight. . Close the open container carefully and keep it straight to prevent leakage.
Store in the original container. Storage temperature of 0 °C/32 °F and up to 50 °C/122 °F.

- Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation. Ground/bond container and receiving equipment.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
EU	2-methoxy-1-methylethyl acetate	108-65-6	IOELV	50	275	100	550			H	2000/39/EC
GB	1-methoxy-2-propyl acetate	108-65-6	WEL	50	274	100	548				EH40/2005
GB	isocyanates, compounds	26471-62-5	WEL		0.02		0.07			NCO	EH40/2005

Notation

Ceiling-C	ceiling value is a limit value above which exposure should not occur
H	absorbed through the skin
NCO	measured total-NCO (isocyanate)
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Biological limit values

Country	Name of agent	Parameter	Notation	Identifier	Value	Source
GB	Isocyanates (applies to HDI, IPDI, TDI and MDI)	isocyanate-derived diamine	crea	BMGV	1 µmol/mol	EH40/2005

Notation

crea	creatinine

Relevant DNELs of components

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	DNEL	0.5 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	DNEL	1 mg/m³	human, inhalatory	worker (industry)	acute - local effects
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	DNEL	0.5 mg/m³	human, inhalatory	worker (industry)	chronic - local effects

Relevant DNELs of components

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	DNEL	1 mg/m³	human, inhalatory	worker (industry)	acute - local effects
2-methoxy-1-methylethyl acetate	108-65-6	DNEL	275 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
2-methoxy-1-methylethyl acetate	108-65-6	DNEL	550 mg/m³	human, inhalatory	worker (industry)	acute - local effects
2-methoxy-1-methylethyl acetate	108-65-6	DNEL	796 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
cyclohexyldimethylamine	98-94-2	DNEL	0.53 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
cyclohexyldimethylamine	98-94-2	DNEL	8.3 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
cyclohexyldimethylamine	98-94-2	DNEL	8.3 mg/m³	human, inhalatory	worker (industry)	acute - local effects
cyclohexyldimethylamine	98-94-2	DNEL	0.6 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
hexamethylene diisocyanate	822-06-0	DNEL	0.035 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
hexamethylene diisocyanate	822-06-0	DNEL	0.07 mg/m³	human, inhalatory	worker (industry)	acute - local effects

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	PNEC	0.127 mg/l	aquatic organisms	freshwater	short-term (single instance)
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	PNEC	0.013 mg/l	aquatic organisms	marine water	short-term (single instance)
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	PNEC	88 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	PNEC	266,701 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	PNEC	26,670 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	PNEC	53,183 mg/kg	terrestrial organisms	soil	short-term (single instance)
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	PNEC	0.127 mg/l	aquatic organisms	freshwater	short-term (single instance)
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	PNEC	0.013 mg/l	aquatic organisms	marine water	short-term (single instance)
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	PNEC	880 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	PNEC	266,700 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	PNEC	26,670 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
(2,4,6-trioxo-triazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	PNEC	53,183 mg/kg	terrestrial organisms	soil	short-term (single instance)
2-methoxy-1-methylethyl acetate	108-65-6	PNEC	0.635 mg/l	aquatic organisms	freshwater	short-term (single instance)
2-methoxy-1-methylethyl acetate	108-65-6	PNEC	0.064 mg/l	aquatic organisms	marine water	short-term (single instance)

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
2-methoxy-1-methylethyl acetate	108-65-6	PNEC	100 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
2-methoxy-1-methylethyl acetate	108-65-6	PNEC	3.29 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
2-methoxy-1-methylethyl acetate	108-65-6	PNEC	0.329 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
2-methoxy-1-methylethyl acetate	108-65-6	PNEC	0.29 mg/kg	terrestrial organisms	soil	short-term (single instance)
cyclohexyldimethylamine	98-94-2	PNEC	0.002 mg/l	aquatic organisms	freshwater	short-term (single instance)
cyclohexyldimethylamine	98-94-2	PNEC	0 mg/l	aquatic organisms	marine water	short-term (single instance)
cyclohexyldimethylamine	98-94-2	PNEC	20.6 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
cyclohexyldimethylamine	98-94-2	PNEC	0.021 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
cyclohexyldimethylamine	98-94-2	PNEC	0.002 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
cyclohexyldimethylamine	98-94-2	PNEC	0.003 mg/kg	terrestrial organisms	soil	short-term (single instance)
hexamethylene diisocyanate	822-06-0	PNEC	0.049 mg/l	aquatic organisms	freshwater	short-term (single instance)
hexamethylene diisocyanate	822-06-0	PNEC	0.005 mg/l	aquatic organisms	marine water	short-term (single instance)
hexamethylene diisocyanate	822-06-0	PNEC	8.42 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
hexamethylene diisocyanate	822-06-0	PNEC	0.674 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
hexamethylene diisocyanate	822-06-0	PNEC	0.067 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
hexamethylene diisocyanate	822-06-0	PNEC	0.523 mg/kg	terrestrial organisms	soil	short-term (single instance)
m-tolylidene diisocyanate	26471-62-5	PNEC	0.013 mg/l	aquatic organisms	freshwater	short-term (single instance)
m-tolylidene diisocyanate	26471-62-5	PNEC	0.001 mg/l	aquatic organisms	marine water	short-term (single instance)

Relevant PNECs of components						
Name of substance	**CAS No**	**End-point**	**Threshold level**	**Organism**	**Environmental compartment**	**Exposure time**
m-tolylidene diisocyanate	26471-62-5	PNEC	1 $^{mg}/_{l}$	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
m-tolylidene diisocyanate	26471-62-5	PNEC	1 $^{mg}/_{kg}$	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection (EN 166).

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Use protective gloves made of butyl rubber as spray protection for short-term work. Material strength: 0.5mm, penetration time ≥ 480 min.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

During spraying wear suitable respiratory equipment. Combination filtering device (EN 141). Particulate filter device (EN 143). Type: A-P2 (combined filters against particles and organic gases and vapours, colour code: Brown/White).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	145.8 °C at 760 mmHg

Flammability	flammable liquid in accordance with GHS criteria

Lower and upper explosion limit

Lower explosion limit (LEL)	0.8 vol%
Upper explosion limit (UEL)	7 vol%

Flash point	42 °C
Auto-ignition temperature	200 °C
pH (value)	not determined
Kinematic viscosity	60 – 80 $^{s}/_{\text{DIN 4mm}}$ at 20 °C

Solubility(ies)

Water solubility	not miscible in any proportion

Partition coefficient

Partition coefficient n-octanol/water (log value)	this information is not available

Vapour pressure	17 hPa at 20 °C

Density and/or relative density

Density	1.118 $^{g}/_{cm^3}$ at 20 °C
Relative vapour density	information on this property is not available

Particle characteristics	not relevant (liquid)

Other safety parameters

Explosive properties	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

9.2 Other information

Information with regard to physical hazard classes	there is no additional information
Other safety characteristics	there is no additional information

SECTION 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition.

If heated:

Risk of ignition

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

Oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Harmful if inhaled.

GHS of the United Nations, annex 4: May be harmful in contact with skin.

- Acute toxicity estimate (ATE)

Inhalation: vapour 15.51 $^{mg}/_{l}$/4h

Acute toxicity estimate (ATE) of components

Name of substance	CAS No	Exposure route	ATE
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	inhalation: vapour	11 $^{mg}/_{l}$/4h
hexamethylene-1,6-diisocyanate, oligomers	28182-81-2	inhalation: dust/mist	1.5 $^{mg}/_{l}$/4h
(2,4,6-trioxotriazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	inhalation: vapour	11 $^{mg}/_{l}$/4h
(2,4,6-trioxotriazine-1,3,5(2H,4H,6H)-triyl)tris(hexamethylene) isocyanate	3779-63-3	inhalation: dust/mist	1.5 $^{mg}/_{l}$/4h

Acute toxicity estimate (ATE) of components			
Name of substance	**CAS No**	**Exposure route**	**ATE**
hydrophilic, aliphatic polyisocyanate	666723-27-9	inhalation: vapour	11 $^{mg}/_{l}$/4h
cyclohexyldimethylamine	98-94-2	oral	>272 $^{mg}/_{kg}$
cyclohexyldimethylamine	98-94-2	dermal	380 $^{mg}/_{kg}$
cyclohexyldimethylamine	98-94-2	inhalation: vapour	3 $^{mg}/_{l}$/4h
hexamethylene diisocyanate	822-06-0	inhalation: vapour	3 $^{mg}/_{l}$/4h
m-tolylidene diisocyanate	26471-62-5	inhalation: vapour	0.05 $^{mg}/_{l}$/4h

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Not listed.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Relevant provisions relating to waste

List of wastes

- Product

08 05 01* waste isocyanates

- Packagings

15 01 10* packaging containing residues of or contaminated by hazardous substances

Disposal methods:

Product

Waste production should be avoided or minimised if possible.
Do not empty into the drains. Avoid releasing the product into the environment. Waste, containers must be removed, disposed in a safe way.

Packagings

Waste production should be avoided or minimised if possible.
Packaging waste should be recycled. Burning or landfilling should only be considered if recycling is not feasible.

Notes on disposal:

Product

Disposal of this product and its dissolutions and by-products must be carried out in accordance with the environmental protection requirements and waste disposal laws as well as the requirements of the local authorities at all times. Excess must be handed over, disposed to a recognised waste disposal company (disposal company/recycling company).

Packagings

With the aid of the information provided in this safety data sheet, the responsible authorities must be consulted regarding classification of empty containers, packaging. Empty containers should be disposed, recycled according to type. Licenced containers, packaging can be disposed free of charge via system partners, where applicable. Containers with residual contents must be disposed in accordance with local and national legal provisions.
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Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID	UN 1263
IMDG-Code	UN 1263
ICAO-TI	UN 1263

14.2 UN proper shipping name

ADR/RID	PAINT RELATED MATERIAL
IMDG-Code	PAINT RELATED MATERIAL
ICAO-TI	Paint related material

14.3 Transport hazard class(es)

ADR/RID	3
IMDG-Code	3
ICAO-TI	3

14.4 Packing group

ADR/RID	III
IMDG-Code	III
ICAO-TI	III

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - Additional information

Classification code	F1
Danger label(s)	3

Special provisions (SP)	163, 367, 650
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3

Tunnel restriction code (TRC)	D/E
Hazard identification No	30
Emergency Action Code	3Y

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information

Classification code	F1
Danger label(s)	3

Special provisions (SP)	163, 367, 650
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Hazard identification No	30

International Maritime Dangerous Goods Code (IMDG) - Additional information

Marine pollutant	-
Danger label(s)	3

Special provisions (SP)	163, 223, 367, 955
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-E
Stowage category	A

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Danger label(s)	3

Special provisions (SP)	A3, A72, A192
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Seveso Directive

2012/18/EU (Seveso III)				
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the application of lower and upper-tier requirements**		**Notes**
P5c	flammable liquids (cat. 2, 3)	5,000	50,000	51)

Notation
51) flammable liquids, categories 2 or 3 not covered by P5a and P5b

Deco-Paint Directive (2004/42/EC)

VOC content	24.94 % 280 $^{g}/_{l}$

Industrial Emissions Directive (IED) (2010/75/EU)

VOC content	24.94 % 278.8 $^{g}/_{l}$

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Water Framework Directive (WFD)

none of the ingredients are listed

Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

Regulation on drug precursors

none of the ingredients are listed

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

National regulations (GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

none of the ingredients are listed

Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name of substance	**Name acc. to inventory**	**CAS No**	**No**
Aqua-Hardener 8452	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
hexamethylene diisocyanate	diisocyanates		74

15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.3	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0,1%.	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) in a concentration of ≥ 0,1%.	yes
16		Abbreviations and acronyms: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
Acute Tox.	Acute toxicity
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor

Abbr.	Descriptions of used abbreviations
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
GHS-GB	The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended)
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Resp. Sens.	Respiratory sensitisation
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
VOC	Volatile Organic Compounds

Abbr.	Descriptions of used abbreviations
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.
Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic 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.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Note concerning the lower explosion limit of water-thinnable varnishes:

See PTB research report PEx5 200500185, Physical-Technical Federal Agency Braunschweig, September 2005 and report PTB-W-57, February 1994.
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Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.