SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006, as amended

Hardener 500AE

Version	Revision Date:	SDS Number:	Date of last issue: 18.04.2023
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Hardener 500AE

Other identifiers : UFI - 2A30-20KY-U003-VDYT

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

Use of the Substance/Mixture : Hardener / Curing agent

Recommended restrictions on use : For industrial use only.

1.3 Details of the supplier of the safety data sheet

Company : **Dunlop Service B.V.**

Address : Heemst 2, 7892AL, Klazienaveen – Emmen, Netherlands
+31 (0) 591 314 171

1.4 Emergency telephone number

Emergency telephone number : In case of poisoning:
GBK-EMTEL International
Tel.(24h):+49(0)6132/84463 (all languages)

In case of transport accidents:
Tel.(24h): (001) 352 323 3500 (Infotrac - Contract ID: 90373 / GBK)

National Poisons Information Centre (NPIC): 01 809 2566 (24 hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2	H225: Highly flammable liquid and vapour.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.

Respiratory sensitisation, Category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
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.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements :

Prevention:

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

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

ethyl acetate
Diphenylmethanediisocyanate, polymeric
p-toluenesulphonyl isocyanate
methylenediphenyl diisocyanate

Additional Labelling

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

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
ethyl acetate	141-78-6 205-500-4 607-022-00-5 01-2119475103-46-0000	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 (Central nervous system) EUH066	>= 70 - < 90

Diphenylmethanediisocyanate, polymeric	9016-87-9	STOT RE 2; H373 (Respiratory Tract) Carc. 2; H351 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory system) --- specific concentration limit Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 % --- Acute toxicity estimate Acute inhalation toxicity (dust/mist): 1,5 mg/l	>= 10 - < 20
tris(p-isocyanatophenyl) thiophosphate	4151-51-3 223-981-9 01-2119948848-16-0000	Acute Tox. 4; H302	>= 1 - < 10
chlorobenzene	108-90-7 203-628-5 602-033-00-1 01-2119432722-45-0000	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Irrit. 2; H315 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 --- M-Factor (Acute aquatic toxicity): 1	>= 0,25 - < 1
p-toluenesulphonyl isocyanate	4083-64-1 223-810-8 615-012-00-7 01-2119980050-47-	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 STOT SE 3; H335	>= 0,1 - < 1

	0000	(Respiratory system) EUH014 specific concentration limit Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 %	
methylenediphenyl diisocyanate	26447-40-5 247-714-0 615-005-00-9 01-2120770510-62-0000	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 Carc. 2; H351 STOT SE 3; H335 (Respiratory system) STOT RE 2; H373 specific concentration limit Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 % Acute toxicity estimate Acute inhalation toxicity (dust/mist): 1,5 mg/l	>= 0,1 - < 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Even minimal concentrations of isocyanate can lead to a reaction in sensitised people.
Symptoms that may occur include the following:
irritation of the eyes, nose, throat and lungs, possibly together with a dry throat, a feeling of chest tightness and breathing difficulties.

Immediately remove clothing if soiled by product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Show this safety data sheet to the doctor in attendance.

If inhaled : Remove person to fresh air. If signs/symptoms continue, get medical attention.
In case of unconsciousness bring patient into stable side position for transport.

In case of skin contact : Wash off with polyethylene glycol and afterwards with plenty of water.
Use a mild soap if available.
Treat affected skin with cotton wool or cellulose.
Call a physician if irritation develops or persists.

In case of eye contact : Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.
Protect unharmed eye.

If swallowed : Do NOT induce vomiting.
If accidentally swallowed obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : In instances of existing sensitisation towards isocyanates, a doctor should be consulted with regards to work-related contact with other sensitising substances, or substances which irritate the airway.

Treatment for exposure should be geared towards monitoring symptoms and the patient's clinical condition.
It must be ensured that the patient has sufficient ventilation and oxygen supply.

Isocyanates can cause sensitisation of the airways, or asthma-like symptoms (bronchospasms). Delayed breathing symptoms, including lung oedema, may occur.

People who have shown signs of breathlessness after considerable exposure should remain under observation for 24-48 hours.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray
Alcohol-resistant foam
Dry powder
Carbon dioxide (CO2)

Unsuitable extinguishing media : Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : May release toxic, irritating and/or corrosive gases.
In case of fire CO, NOx, isocyanates and traces of HCN can be formed.

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.
Use personal protective equipment.
Use breathing protection against the effects of fumes/dust/aerosol.
Evacuate personnel to safe areas.
Ensure adequate ventilation.

6.2 Environmental precautions

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Non-sparking tools should be used.
Ensure adequate ventilation.
Send for recovery or disposal in suitable containers.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Take note of emission threshold.
Avoid formation of aerosol.
Use solvent-proof equipment.
Ensure that suitable extractors are available on processing machines.
Handle with care. Avoid inhalation and skin contact.
Keep eye wash bottle available on working place.
Avoid release to the environment.
Keep out of reach of children.

Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the vapor concentration below the work-place limit, wear an adequate respiratory protective device.

Advice on protection against fire and explosion : Keep product and empty container away from heat and sources of ignition. Do not smoke. Take measures to prevent the build up of electrostatic charge. May form explosive mix-

tures in air. Highly volatile, flammable constituents are released during processing. In the event of fire and/or explosion do not breathe fumes. Keep breathing equipment ready. Have fire extinguishing equipment ready in case of nearby fire.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep tightly closed in a dry, cool and well-ventilated place. Protect against light. Do not freeze.

Further information on storage conditions : Store in a cool place. Heat will increase pressure and may lead to the container exploding. Keep containers tightly closed in a dry, cool and well-ventilated place. Prevent any seepage into the ground.

Advice on common storage : Keep away from food, drink and animal feedingstuffs.
Do not store together with oxidizing and self-igniting products.
Never allow product to get in contact with water during storage.

7.3 Specific end use(s)

Specific use(s) : No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
ethyl acetate	141-78-6	OELV - 8 hrs (TWA)	200 ppm 734 mg/m3	IE OEL
		OELV - 15 min (STEL)	400 ppm 1.468 mg/m3	IE OEL
		STEL	400 ppm 1.468 mg/m3	2017/164/EU
	Further information: Indicative			
		TWA	200 ppm 734 mg/m3	2017/164/EU
	Further information: Indicative			
Diphenylmethanediisocyanate, polymeric	9016-87-9	OELV - 8 hrs (TWA)	0,02 mg/m3 (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			

		OELV - 15 min (STEL)	0,07 mg/m3 (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
		OELV - 8 hrs (TWA)	0,005 ppm (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
tris(p-isocyanatophenyl) thiophosphate	4151-51-3	OELV - 8 hrs (TWA)	0,02 mg/m3 (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
		OELV - 15 min (STEL)	0,07 mg/m3 (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
chlorobenzene	108-90-7	STEL	15 ppm 70 mg/m3	2006/15/EC
	Further information: Indicative			
		TWA	5 ppm 23 mg/m3	2006/15/EC
	Further information: Indicative			
		OELV - 8 hrs (TWA)	5 ppm 23 mg/m3 (monochlorobenzene)	IE OEL
		OELV - 15 min (STEL)	15 ppm 70 mg/m3 (monochlorobenzene)	IE OEL
p-toluenesulphonyl isocyanate	4083-64-1	OELV - 8 hrs (TWA)	0,02 mg/m3 (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
		OELV - 15 min (STEL)	0,07 mg/m3 (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
methylenediphenyl diisocyanate	26447-40-5	OELV - 8 hrs (TWA)	0,02 mg/m3 (As -NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			

		OELV - 15 min (STEL)	0,07 mg/m3 (As -NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			
		OELV - 8 hrs (TWA)	0,005 ppm (NCO)	IE OEL
	Further information: Chemical agents which following exposure may cause sensitisation of the respiratory tract and lead to asthma, rhinitis or extrinsic allergic alveolitis			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
ethyl acetate	Workers	Eye contact	Local effects	
	Workers	Inhalation	Systemic, short-term	1468 mg/m3
	Workers	Inhalation	Systemic, long-term	734 mg/m3
	Workers	Inhalation	Local, short-term	1468 mg/m3
	Workers	Inhalation	Local, long-term	734 mg/m3
	Workers	Dermal	Systemic, long-term	63 mg/kg
tris(p-isocyanatophenyl) thiophosphate	Workers	Inhalation	Local, long-term	0,047 mg/m3
	Workers	Eye contact	Local effects	
p-toluenesulphonyl isocyanate	Workers	Inhalation	Systemic, long-term	3,24 mg/m3
	Workers	Eye contact	Local effects	
	Workers	Dermal	Systemic, long-term	0,92 mg/kg
methylenediphenyl diisocyanate	Workers	Dermal	Acute systemic effects	50 mg/kg
	Workers	Inhalation	Acute systemic effects	0,1 mg/m3
	Workers	Dermal	Local effects	28,7 mg/cm2
	Workers	Inhalation	Local effects	0,1 mg/m3
	Workers	Inhalation	Long-term systemic effects	0,05 mg/m3
	Workers	Inhalation	Local effects	0,05 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
ethyl acetate	Soil	0,148 mg/kg
	Predator	0,2 g/kg
	Fresh water sediment	1,15 mg/kg
	Fresh water	0,24 mg/l
	Sewage treatment plant	650 mg/l
	Marine water	0,024 mg/l
	Marine sediment	0,115 mg/kg
tris(p-isocyanatophenyl) thio-	Marine water	0,01 mg/l

phosphate		
	Soil	510 mg/kg
	Fresh water	0,1 mg/l
	Marine sediment	155 mg/kg
	Fresh water sediment	2557 mg/kg
	Sewage treatment plant	100 mg/l
p-toluenesulphonyl isocyanate	Soil	0,017 mg/kg
	Marine sediment	0,017 mg/kg
	Fresh water sediment	0,172 mg/kg
	Sewage treatment plant	0,4 mg/l
	Fresh water	0,03 mg/l
	Marine water	0,003 mg/l
methylenediphenyl diisocyanate	Fresh water	> 1 mg/l
	Marine water	> 0,1 mg/l
	Soil	> 1 mg/kg
	Sewage treatment plant	> 1 mg/l

8.2 Exposure controls

Engineering measures

Please take care on national and local requirements.
Use local exhaust ventilation or other engineering controls to minimize exposures.

Personal protective equipment

Eye protection : Tightly fitting safety goggles or equipment with better protection

Hand protection
Material : Nitrile rubber or equipment with better protection

Remarks : Direct contact with the product must be avoided by organizational measures.

The glove material has to be impermeable and resistant to the product/the substance/the preparation.
The exact break through time can be obtained from the protective glove producer and this has to be observed.
The gloves need to be disposed after the penetration time and replaced by new ones.
Apply skin protectant before working with gloves to avoid skin swellings and use a skin cleansing and skincare product after the work.

For the permanent contact gloves made of the following materials are suitable:
If longer exposure to the chemical preparation is necessary, a sturdy overglove against mechanical strain is recommended in combination with the Barrier 02-100 underglove from Ansell or other suppliers (penetration time: 480 min).

For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:
Butyl rubber (minimum thickness: 0.7 mm; penetration time: 15 min)

As protection from splashes gloves made of the following materials are suitable:
Nitril (minimum thickness 0.12 mm), Disposable gloves with long cuffs

After contact with the chemical preparation, take the disposable nitrile glove off immediately and put on a new disposable nitrile glove.

Skin and body protection : Protective clothing

When carrying out activities where unintentional skin contact with the isocyanate-based product may occur (e.g. during maintenance work, or when opening a barrel), wear long-sleeved protective clothing and gloves.

Respiratory protection : Use respiratory protection unless adequate risk management measures (exhaust/ ventilation) are provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
In case of brief exposure or low pollution (exceeding of TLV) use breathing filter apparatus.
In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.

Filter type : For short term, use combination charcoal and particulate filter or equipment with better protection.

Protective measures : Instantly remove any soiled and impregnated garments.
Wash hands before breaks and immediately after handling the product.
Avoid contact with the eyes and skin.
Store protective clothing separately.
Keep away from food, drink and animal feedingstuffs.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	brown
Odour	:	characteristic
Odour Threshold	:	is not determined
Melting point/freezing point	:	is not determined
Boiling point/boiling range	:	is not determined 76 °C
Flash point	:	-4 °C
Auto-ignition temperature	:	is not determined
Decomposition temperature	:	Not applicable
pH	:	is not determined
Solubility(ies) Water solubility	:	partly soluble, reacts with water
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	100 hPa (20 °C)
Density	:	0,98 g/cm³ (20 °C)
Relative vapour density	:	is not determined

9.2 Other information

Explosives	:	Product is not explosive. However, formation of explosive vapour/air mixtures is possible.
Evaporation rate	:	is not determined

SECTION 10: Stability and reactivity

10.1 Reactivity

Container can be pressurized by carbon dioxide due to reaction with humid air and/or water.

10.2 Chemical stability

No decomposition if used according to the specifications.

10.3 Possibility of hazardous reactions

Hazardous reactions : Develops readily flammable vapours/fumes.
Reacts with alcohols, amines, aqueous acids and alkalis.
Mixture reacts with water resulting in evolution of CO2.
Evolution of CO2 in closed containers causes overpressure and produces a risk of bursting.

10.4 Conditions to avoid

Conditions to avoid : No further relevant information available.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Amines

10.6 Hazardous decomposition products

In case of fire hazardous decomposition products may be produced such as:
Nitrogen oxides (NOx)
Isocyanates

Additional information: Open and release pressure carefully with pressurised containers.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Based on available data, the classification criteria are not met.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 Hours
Test atmosphere: dust/mist
Method: Calculation method

Components:

ethyl acetate:

Acute oral toxicity	:	LD50 Oral (Rat): 5.620 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 22,5 mg/l Exposure time: 4 Hours Test atmosphere: Inhalation
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 20.000 mg/kg

Diphenylmethanediisocyanate, polymeric:

Acute inhalation toxicity	:	Acute toxicity estimate: 1,5 mg/l Test atmosphere: dust/mist Method: Expert judgement

chlorobenzene:

Acute oral toxicity	:	LD50 Oral (Rat): 1.110 mg/kg

p-toluenesulphonyl isocyanate:

Acute inhalation toxicity	:	LC50 (Rat): > 640 ppm Exposure time: 1 Hours Test atmosphere: vapour

methylenediphenyl diisocyanate:

Acute inhalation toxicity	:	Acute toxicity estimate: 1,5 mg/l Test atmosphere: dust/mist Method: Calculation method

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT - single exposure

May cause respiratory irritation.
May cause drowsiness or dizziness.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity

Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1 Toxicity

Components:

ethyl acetate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 220 - 250 mg/l Exposure time: 96 Hours Test Type: flow-through test

chlorobenzene:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 4,1 - 4,9 mg/l Exposure time: 96 Hours Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,59 mg/l Exposure time: 48 Hours Test Type: static test

Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (microalgae)): 2,55 - 420 mg/l Exposure time: 96 Hours Test Type: flow-through test
M-Factor (Acute aquatic toxicity)	:	1

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Components:

ethyl acetate:

Partition coefficient: n-octanol/water	:	log Pow: > 0,66 - < 0,73 (25 °C) pH: 7 GLP: no

methylenediphenyl diisocyanate:

Partition coefficient: n-octanol/water	:	log Pow: 4,5

12.4 Mobility in soil

Product:

Mobility	:	Medium: Soil Remarks: Do not allow product to reach ground water, water bodies or sewage system.

12.5 Results of PBT and vPvB assessment

Product:

Assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of with domestic refuse.
Do not dispose of waste into sewer.
Hand over to disposers of hazardous waste.
The generation of waste should be avoided or minimized wherever possible.
Incinerate under controlled conditions in accordance with all local and national laws and regulations.
Disposal must be made according to official regulations.

These EU waste code numbers are recommendations for waste accruing through the use of adhesives and sealants. Any waste produced from organic solvents or other dangerous substances (according GHS) listed under section 3 of this safety datasheet is itself classified as dangerous (*).

Waste accruing during application:
08 04 09* waste adhesives and sealants containing organic solvents or other dangerous substances
08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09

Waste accruing during cleaning:
08 04 11* adhesive and sealant sludges containing organic solvents or other dangerous substances
08 04 12 adhesive and sealant sludges other than those mentioned in 08 04 11

Waste packaging:
15 01 01 paper and cardboard packaging
15 01 02 plastic packaging
15 01 04 metallic packaging
15 01 10* packaging containing residues of or contaminated by dangerous substances.

Contaminated packaging : Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN number or ID number

ADR	:	UN 1173
RID	:	UN 1173
IMDG	:	UN 1173
IATA	:	UN 1173

14.2 UN proper shipping name

ADR	:	ETHYL ACETATE
RID	:	ETHYL ACETATE
IMDG	:	ETHYL ACETATE
IATA	:	Ethyl acetate

14.3 Transport hazard class(es)

ADR	:	3
RID	:	3
IMDG	:	3
IATA	:	3

14.4 Packing group

ADR

Packing group	:	II
Classification Code	:	F1
Hazard Identification Number	:	33
Labels	:	3
Tunnel restriction code	:	(D/E)

RID

Packing group	:	II
Classification Code	:	F1
Hazard Identification Number	:	33
Labels	:	3

IMDG

Packing group	:	II
Labels	:	3
EmS Code	:	F-E, S-D

IATA (Cargo)

Packing instruction (cargo aircraft)	:	364
Packing instruction (LQ)	:	Y341
Packing group	:	II
Labels	:	Flammable Liquids

IATA_P (Passenger)

Packing instruction (passen-	:	353

ger aircraft)
Packing instruction (LQ) : Y341
Packing group : II
Labels : Flammable Liquids

14.5 Environmental hazards

ADR
Environmentally hazardous : no

RID
Environmentally hazardous : no

IMDG
Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Number on list 74, 3

Diphenylmethanediisocyanate, polymeric (Number on list 74)

methylenediphenyl diisocyanate (Number on list 74)

REACH - Candidate List of Substances of Very High Concern for Authorisation (SVHC, Article 59) : Compliant

Regulation (EC) 2024/590 on substances that deplete the ozone layer : Compliant

Regulation (EU) 2019/1021 on persistent organic pollu- : Compliant

tants (recast)

RoHS: 2011/65/EU, Restriction of Hazardous Substances	:	Compliant
Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors	:	Neither banned nor restricted
Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Compliant

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c	FLAMMABLE LIQUIDS
	H2	

Volatile organic compounds	:	Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 75,48 %

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory
AIIC	:	On the inventory, or in compliance with the inventory

DSL	:	All components of this product are on the Canadian DSL
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
REACH	:	On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this mixture.

SECTION 16: Other information

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
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.
H336	:	May cause drowsiness or dizziness.
H351	:	Suspected of causing cancer.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H373	:	May cause damage to organs through prolonged or repeated exposure if inhaled.
H400	:	Very toxic to aquatic life.
H411	:	Toxic to aquatic life with long lasting effects.
EUH014	:	Reacts violently with water.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Carc.	:	Carcinogenicity
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Resp. Sens.	:	Respiratory sensitisation
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
2017/164/EU	:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
IE OEL	:	Ireland. List of Chemical Agents and Carcinogens with Occupational Exposure Limit Values - Code of Practice, Schedule 1 and 2
2006/15/EC / TWA	:	Limit Value - eight hours
2006/15/EC / STEL	:	Short term exposure limit
2017/164/EU / STEL	:	Short term exposure limit
2017/164/EU / TWA	:	Limit Value - eight hours
IE OEL / OELV - 8 hrs (TWA)	:	Occupational exposure limit value (8-hour reference period)
IE OEL / OELV - 15 min (STEL)	:	Occupational exposure limit value (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office

of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

Modified data compared to the previous version
The following sections have been updated:
- Section 1
- Section 2
- Section 3
- Section 4
- Section 5
- Section 6
- Section 7
- Section 8
- Section 10
- Section 11
- Section 12
- Section 15
- Section 16

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Classification of the mixture:		**Classification procedure:**
Flam. Liq. 2	H225	Based on product data or assessment
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Resp. Sens. 1	H334	Calculation method
Skin Sens. 1	H317	Calculation method
Carc. 2	H351	Calculation method
STOT SE 3	H335	Calculation method
STOT SE 3	H336	Calculation method
STOT RE 2	H373	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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