

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

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

1.1 Product identifier

Trade name	:	HARDENER 21-15
Product code	:	47948414
Unique Formula Identifier (UFI)	:	7DGV-J01W-U00N-3Y6R

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

Use of the Substance/Mixture	:	Use at industrial sites, Widespread use by professional workers Industrial spraying Hardeners, Industrial products for protection of metals
Recommended restrictions on use	:	Reserved for industrial and professional use., Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use.

1.3 Details of the supplier of the safety data sheet

Company	:	Helios TBLUS d.o.o. Količevo 65 1230 Domžale Slovenia
Telephone Company	:	386 (1) 722 4383
Telefax Company	:	386 (1) 722 4310
Responsible/issuing person	:	386 (1) 722 4383 productsafety@helios.si

1.4 Emergency telephone number

Call 999 (or 112) for emergency medical attention
professionals only: National Poison Information Service (NPIS) 24h national number 0844 892 0111
consumer: National Health Service (NHS) 24h national number, England & Scotland 111

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms :



Signal word : Danger

Hazard statements :

H226	Flammable liquid and vapour.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing mist or vapours.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

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:

Hexamethylene-di-isocyanate, polymer
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane
4-isocyanatosulphonyltoluene
hexamethylene-di-isocyanate

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Isocyanate

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
aliphatic polyisocyanate	28182-81-2 500-060-2 01-2119485796-17	Acute Tox. 4; H332 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory system)	>= 70 - < 90
n-butyl acetate	123-86-4 204-658-1 607-025-00-1 01-2119485493-29	Flam. Liq. 3; H226 STOT SE 3; H336 (Central nervous system) EUH066	>= 10 - < 20
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8 219-784-2 01-2119513212-58	Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 10 - < 20
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 (Respiratory system) EUH014 specific concentra-	>= 0,1 - < 1

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version
1.2

Revision Date:
17.03.2022

SDS Number:
MAT000479484
GB / EN

Date of last issue: 03.02.2022
Date of first issue: 28.01.2022

		tion limit Eye Irrit. 2; H319 ≥ 5 % STOT SE 3; H335 ≥ 5 % Skin Irrit. 2; H315 ≥ 5 %	
hexamethylene diisocyanate	822-06-0 212-485-8 615-011-00-1 01-2119457571-37	Acute Tox. 4; H302 Acute Tox. 2; H330 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory sys- tem) specific concentra- tion limit Resp. Sens. 1; H334 ≥ 0,5 % Skin Sens. 1; H317 ≥ 0,5 %	< 0,1

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Call a physician or poison control centre immediately.
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tis-
sue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty
of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Risks : May cause an allergic skin reaction.
Causes serious eye damage.
Harmful if inhaled.
May cause respiratory irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : No hazardous combustion products are known.

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : For further information, refer to the product technical data sheet.

Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
Hexamethylene-di-isocyanate, polymer	Workers	Inhalation	Long-term local effects	0,5 mg/m3
	Workers	Inhalation	Long-term systemic effects	1 mg/m3
n-butyl acetate	Workers	Inhalation	Acute systemic effects	600 mg/m3
	Workers	Inhalation	Acute local effects	600 mg/m3
	Workers	Inhalation	Long-term systemic effects	48 mg/m3
	Workers	Inhalation	Long-term local effects	300 mg/m3
	Consumers	Inhalation	Acute systemic effects	300 mg/m3
	Consumers	Inhalation	Acute local effects	300 mg/m3
	Consumers	Inhalation	Long-term systemic effects	12 mg/m3
	Consumers	Inhalation	Long-term local effects	35,7 mg/m3

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version
1.2

Revision Date:
17.03.2022

SDS Number:
MAT000479484
GB / EN

Date of last issue: 03.02.2022
Date of first issue: 28.01.2022

			ffects	
	Consumers	Dermal	Long-term systemic effects	3,4 mg/kg bw/day
	Consumers	Dermal	Acute systemic effects	6 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	2 mg/kg bw/day
	Consumers	Oral	Acute systemic effects	2 mg/kg bw/day
	Workers	Dermal	Long-term systemic effects	7 mg/kg bw/day
	Workers	Dermal	Acute systemic effects	11 mg/kg bw/day
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Workers	Inhalation	Long-term systemic effects	147 mg/m3
	Workers	Dermal	Long-term systemic effects	21 mg/kg bw/day
	Consumers	Dermal	Long-term systemic effects	12,5 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	12,5 mg/kg bw/day
4-isocyanatosulphonyltoluene	Workers	Inhalation	Long-term systemic effects	3,24 mg/m3
	Consumers	Inhalation	Long-term systemic effects	0,8 mg/m3
	Workers	Dermal	Long-term systemic effects	0,92 mg/kg bw/day
	Consumers	Dermal	Long-term systemic effects	0,46 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,46 mg/kg bw/day
hexamethylene-diisocyanate	Workers	Inhalation	Long-term systemic effects	0,035 mg/m3
	Workers	Inhalation	Acute systemic effects	0,07 mg/m3
	Workers	Inhalation	Long-term local effects	0,035 mg/m3
	Workers	Inhalation	Acute local effects	0,07 mg/m3

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
Hexamethylene-diisocyanate, polymer	Soil	53182 mg/kg dry weight (d.w.)
	Marine water	0,0127 mg/l
	Fresh water	0,127 mg/l
	Marine sediment	26670 mg/kg dry weight (d.w.)
	Fresh water sediment	266670 mg/kg

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

		dry weight (d.w.)
	Sewage treatment plant	38,3 mg/l
	Intermittent use/release	1,27 mg/l
n-butyl acetate	Soil	0,0903 mg/kg dry weight (d.w.)
	Marine water	0,018 mg/l
	Fresh water	0,18 mg/l
	Marine sediment	0,0981 mg/kg dry weight (d.w.)
	Fresh water sediment	0,981 mg/kg dry weight (d.w.)
	Sewage treatment plant	35,6 mg/l
	Intermittent use/release	0,36 mg/l
[3-(2,3-epoxypropyl)trimethoxysilane	Soil	0,14 mg/kg dry weight (d.w.)
	Marine water	0,1 mg/l
	Fresh water	1 mg/l
	Marine sediment	0,36 mg/kg dry weight (d.w.)
	Fresh water sediment	3,6 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
	Intermittent use/release	1 mg/l
4-isocyanatosulphonyltoluene	Soil	0,0168 mg/kg dry weight (d.w.)
	Marine water	0,003 mg/l
	Fresh water	0,03 mg/l
	Marine sediment	0,0172 mg/kg dry weight (d.w.)
	Fresh water sediment	0,172 mg/kg dry weight (d.w.)
	Sewage treatment plant	0,4 mg/l
	Intermittent use/release	0,3 mg/l
hexamethylene-di-isocyanate	Soil	0,0026 mg/kg dry weight (d.w.)
	Marine water	0,00774 mg/l
	Fresh water	0,0774 mg/l
	Marine sediment	0,001344 mg/kg dry weight (d.w.)
	Fresh water sediment	0,01334 mg/kg dry weight (d.w.)
	Sewage treatment plant	8,42 mg/l
	Intermittent use/release	0,774 mg/l

8.2 Exposure controls

Personal protective equipment

Eye protection : Equipment should conform to EN 166
Eye wash bottle with pure water
Tightly fitting safety goggles

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Gloves : Nitrile rubber (> 0,1 mm; < 60 min); DIN EN374 |
butyl-rubber (> 0,6 mm; < 240 min); DIN EN374 |
Viton® (> 0,6 mm; < 240 min); DIN EN374 |
PE laminate (> 0,1 mm; < 240 min); DIN EN374 |

Remarks : Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Equipment should conform to EN 14387

Filter type : Organic vapour type (A)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: liquid
Colour	: Colorless to pale yellow
Odour	: solvent-like
Odour Threshold	: No data available
pH	: substance/mixture is non-polar/aprotic (not an aqueous solution)
Melting point/freezing point	: -78,0 °C (calculation method (principal components, lowest value))
Boiling point/boiling range	: 126 °C (calculation method (principal components, lowest value))
Flash point	: 29 °C (calculation method (principal components, lowest value))

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Evaporation rate	:	No data available
Upper explosion limit / Upper flammability limit	:	7,5 %(V) (calculation method (principal components, highest value))
Lower explosion limit / Lower flammability limit	:	1,2 %(V) (calculation method (principal components, highest value))
Vapour pressure	:	< 1.100 hPa (calculation method (principal components, highest value)) (50 °C)
Relative vapour density	:	4 (calculation method (principal components, highest value))
Density	:	1,1 g/cm ³ (20 °C)
Solubility(ies)		
Water solubility	:	negligible
Solubility in other solvents	:	Description: miscible with most organic solvents
Partition coefficient: n-octanol/water	:	log Pow: 1,81 (calculation method (principal components, highest value))
Auto-ignition temperature	:	425 °C (calculation method (principal components, highest value))
Decomposition temperature	:	No decomposition if stored and applied as directed.
Viscosity		
Viscosity, kinematic	:	> 21 mm ² /s (40 °C)
Flow time	:	18 - 25 s at 20 °C Method: DIN4
Explosive properties	:	Not explosive In use, may form flammable/explosive vapour-air mixture.
Oxidizing properties	:	Sustains combustion

9.2 Other information

Flammability (liquids)	:	Static-accumulating flammable liquid.
Self-ignition	:	not auto-flammable

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.
Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Incompatible with strong acids and bases.

10.6 Hazardous decomposition products

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Harmful if inhaled.

Product:

Acute inhalation toxicity : Acute toxicity estimate: 14,62 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Components:

Hexamethylene-di-isocyanate, polymer:

Acute inhalation toxicity : Assessment: The component/mixture is moderately toxic after short term inhalation.

n-butyl acetate:

Acute oral toxicity : LD50 Oral (Rat): ≥ 10.760 mg/kg

Acute dermal toxicity : LD50 (Rabbit): ≥ 5.000 mg/kg

hexamethylene-di-isocyanate:

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : Assessment: The component/mixture is highly toxic after short term inhalation.

Skin corrosion/irritation

Not classified based on available information.

Product:

Remarks : Extremely corrosive and destructive to tissue.

Components:

4-isocyanatosulphonyltoluene:

Result : irritating

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks : May cause irreversible eye damage.

Components:

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Result : Corrosive

4-isocyanatosulphonyltoluene:

Result : Eye irritation

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Product:

Remarks : Causes sensitisation.

Components:

Hexamethylene-di-isocyanate, polymer:

Result : Probability or evidence of skin sensitisation in humans

4-isocyanatosulphonyltoluene:

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Result : Probability of respiratory sensitisation in humans based on animal testing

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

May cause respiratory irritation.

Components:

Hexamethylene-di-isocyanate, polymer:

Assessment : May cause respiratory irritation.

n-butyl acetate:

Assessment : May cause drowsiness or dizziness.

4-isocyanatosulphonyltoluene:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks : Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

n-butyl acetate:

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): > 200 mg/l

EC50 (Desmodesmus subspicatus (green algae)): >= 647,7 mg/l

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Exposure time: 72 h

Toxicity to microorganisms : IC50 (Tetrahymena pyriformis): 356 mg/l
Exposure time: 40 h

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 55 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 350 mg/l
Exposure time: 96 h

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 100 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

Components:

n-butyl acetate:

Biodegradability : Result: Biodegradable
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Stability in water : Degradation half life: 78 d
pH: 8
Remarks: Hydrolyses slowly.

Photodegradation : Remarks: Decomposes rapidly in contact with light.

12.3 Bioaccumulative potential

Components:

n-butyl acetate:

Bioaccumulation : Bioconcentration factor (BCF): 15
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 1,81

12.4 Mobility in soil

No data available

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

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 Other adverse effects

Product:

Endocrine disrupting potential : 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.

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	: Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.
Waste Code	: 08 00 00, WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS 08 01 00, wastes from MFSU and removal of paint and varnish 08 01 11*, waste paint and varnish containing organic solvents or other hazardous substances 15 00 00, WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED 15 01 00, packaging (including separately collected municipal packaging waste) 15 01 10*, packaging containing residues of or contaminated by hazardous substances HP3, Flammable

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

HP4, Irritant - skin irritation and eye damage
HP6, Acute Toxicity
HP13, Sensitising

SECTION 14: Transport information

14.1 UN number

ADN	:	UN 1263
ADR	:	UN 1263
RID	:	UN 1263
IMDG	:	UN 1263
IATA	:	UN 1263

14.2 UN proper shipping name

ADN	:	PAINT RELATED MATERIAL
ADR	:	PAINT RELATED MATERIAL
RID	:	PAINT RELATED MATERIAL
IMDG	:	PAINT RELATED MATERIAL
IATA	:	Paint related material

14.3 Transport hazard class(es)

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

14.4 Packing group

ADN	
Packing group	: III
Classification Code	: F1
Hazard Identification Number	: 30
Labels	: 3
ADR	
Packing group	: III
Classification Code	: F1
Hazard Identification Number	: 30
Labels	: 3
Tunnel restriction code	: (D/E)
RID	
Packing group	: III
Classification Code	: F1

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

Hazard Identification Number : 30
Labels : 3

IMDG

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

IATA (Cargo)

Packing instruction (cargo aircraft) : 366
Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft) : 355
Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

14.5 Environmental hazards

ADN

Environmentally hazardous : no

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 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

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

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

UK REACH List of substances subject to authorisation (Annex XIV) : Not applicable

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

Seveso III Directive (2012/18/EU) implemented by Control of Major Accident Hazards Regulations 2015 (COMAH) P5c FLAMMABLE LIQUIDS

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Volatile organic compounds (VOC) content: 14,2 %

Other regulations:

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
AICS	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
ENCS	: Not in compliance with the inventory
ISHL	: Not 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
NZIoC	: Not in compliance with the inventory

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

REACH : Not in compliance with the inventory

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16: Other information

Full text of H-Statements

H226	: Flammable liquid and vapour.
H302	: Harmful if swallowed.
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.
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.
H412	: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Resp. Sens.	: Respiratory sensitisation
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT SE	: Specific target organ toxicity - single exposure

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;

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758

HARDENER 21-15

Version	Revision Date:	SDS Number:	Date of last issue: 03.02.2022
1.2	17.03.2022	MAT000479484	Date of first issue: 28.01.2022
		GB / EN	

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; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Classification of the mixture:

Flam. Liq. 3	H226
Acute Tox. 4	H332
Eye Dam. 1	H318
Skin Sens. 1	H317
STOT SE 3	H335

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method
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.

GB / EN