

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

1.1. Product identifier

Product form : Mixture
Product name : Verharder PU1 - 2DN (Hardener)
Product code : F.0754.B
Product group : Recipe

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

Relevant identified uses

Main use category : Industrial use, Professional use
Industrial/Professional use spec : For professional use only
Use of the substance/mixture : Hardener
Function or use category : Coatings and paints, thinners, paint removers

Uses advised against

Restrictions on use : Consumer uses: Private households (= general public = consumers)

1.3. Details of the supplier of the safety data sheet

Manufacturer

Nelf Marine Paints B.V.
Nieuweweg 5
NL 9073 GN Marrum, Fryslân
Nederland
T +31 (0)518 - 418 000
info@nelfmarine.nl, www.nelfmarine.nl

1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
Netherlands	Nationaal Vergiftigingen Informatie Centrum (NVIC)	Huispostnummer Q03.2.315 Postbus 85500 3508 GA Utrecht	+31 88 755 80 00	Only for the purpose of informing medical personnel in cases of acute intoxications (24 hours a day, 7 days a week)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids, Category 3 H226
Acute toxicity (inhalation:dust,mist) Category 4 H332
Skin corrosion/irritation, Category 2 H315
Serious eye damage/eye irritation, Category 2 H319
Skin sensitisation, Category 1 H317
Specific target organ toxicity – Single exposure, Category 3, H335
Respiratory tract irritation
Specific target organ toxicity – Repeated exposure, Category 2 H373
Hazardous to the aquatic environment – Chronic Hazard, H412
Category 3

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. May cause damage to organs through prolonged or repeated exposure. Harmful if inhaled. May cause respiratory irritation. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Harmful to aquatic life with long lasting effects.

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2.2. Label elements

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

Hazard pictograms (CLP)



CLP Signal word

Contains

Hazard statements (CLP)

Precautionary statements (CLP)

- : Warning
- : HDI oligomers, isocyanurate; Solvent naphtha (petroleum), light arom.; Reaction mass of ethylbenzene and xylene
- : 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.
H373 - May cause damage to organs through prolonged or repeated exposure.
H412 - Harmful to aquatic life with long lasting effects.
- : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 - Avoid breathing vapours.
P264 - Wash hands thoroughly after handling.
P280 - Wear eye protection, protective gloves.
P312 - Call a doctor if you feel unwell.
P314 - Get medical advice/attention if you feel unwell.

2.3. Other hazards

PBT: not yet assessed

vPvB: not yet assessed

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	HDI oligomers, isocyanurate (28182-81-2)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	HDI oligomers, isocyanurate (28182-81-2)

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
HDI oligomers, isocyanurate	CAS-No.: 28182-81-2 EC-No.: 931-274-8 REACH-no: 01-2119485796-17	50 – 75	Acute Tox. 4 (Inhalation), H332 (ATE=1.5 mg/l/4h) Skin Sens. 1, H317 STOT SE 3, H335

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Reaction mass of ethylbenzene and xylene substance with national workplace exposure limit(s) (DE, FR, GB, NL, PL); substance with a Community workplace exposure limit	EC-No.: 905-588-0 REACH-no: 01-2119488216-32	10 – 25	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 (ATE=1100 mg/kg bodyweight) Acute Tox. 4 (Inhalation), H332 (ATE=11 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 3, H412
2-methoxy-1-methylethyl acetate substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, LT, LU, LV, MT, NL, PL, RO, SE, SI, SK, IS, NO, RS, CH); substance with a Community workplace exposure limit	CAS-No.: 108-65-6 EC-No.: 203-603-9 EC Index-No.: 607-195-00-7 REACH-no: 01-2119475791-29	10 – 25	Flam. Liq. 3, H226 STOT SE 3, H336
n-butyl acetate substance with national workplace exposure limit(s) (CZ, DE, FR, GB, NL, PL, RO, SK, RS); substance with a Community workplace exposure limit	CAS-No.: 123-86-4 EC-No.: 204-658-1 EC Index-No.: 607-025-00-1 REACH-no: 01-2119485493-29	3 – 5	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066
Solvent naphtha (petroleum), light arom.	CAS-No.: 64742-95-6 EC-No.: 265-199-0 EC Index-No.: 649-356-00-4 REACH-no: 01-2119455851-35 / 01-2119486773	3 – 5	Flam. Liq. 3, H226 STOT SE 3, H336 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
hexamethylene-di-isocyanate substance with national workplace exposure limit(s) (CZ, DE, FR, PL, RO, SK)	CAS-No.: 822-06-0 EC-No.: 212-485-8 EC Index-No.: 615-011-00-1 REACH-no: 01-2119457571-37	0.05 – 0.1	Acute Tox. 4 (Oral), H302 (ATE=738 mg/kg bodyweight) Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335
2-methoxypropyl acetate substance with national workplace exposure limit(s) (CZ, DE, PL, SK)	CAS-No.: 70657-70-4 EC-No.: 274-724-2 EC Index-No.: 607-251-00-0	0.01 – 0.036	Flam. Liq. 3, H226 Repr. 1B, H360D STOT SE 3, H335

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
hexamethylene-di-isocyanate	CAS-No.: 822-06-0 EC-No.: 212-485-8 EC Index-No.: 615-011-00-1 REACH-no: 01-2119457571-37	(0.5 ≤ C ≤ 100) Skin Sens. 1; H317 (0.5 ≤ C ≤ 100) Resp. Sens. 1; H334

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: Call a poison center or a doctor if you feel unwell.

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First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.
Self protection of the first-aider	: First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation	: Harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: Irritation. May cause an allergic skin reaction. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	: Eye irritation.
Symptoms/effects after ingestion	: None under normal conditions.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Flammable liquid and vapour.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.
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For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area. No open flames, no sparks, and no smoking. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

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6.3. Methods and material for containment and cleaning up

- For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
- Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.
- Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.
- Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Ground/bond container and receiving equipment.
- Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
- Packaging materials : Always store product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

2-methoxy-1-methylethyl acetate (108-65-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	2-Methoxy-1-methylethylacetate
IOEL TWA	275 mg/m ³
	50 ppm
IOEL STEL	550 mg/m ³
	100 ppm
Remark	Skin
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Netherlands - Occupational Exposure Limits	
Local name	1-Methoxy-2-propylacetaat
TGG-8u (OEL TWA)	550 mg/m ³
	100 ppm

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2-methoxy-1-methylethyl acetate (108-65-6)	
Regulatory reference	Arbeidsomstandighedenregeling 2024
n-butyl acetate (123-86-4)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	n-butyl acetate
IOEL TWA	241 mg/m ³
	50 ppm
IOEL STEL	723 mg/m ³
	150 ppm
Remark	SCOEL Recommendations (Ongoing)
Regulatory reference	COMMISSION DIRECTIVE (EU) 2019/1831
Netherlands - Occupational Exposure Limits	
Local name	n-Butylacetaat
TGG-8u (OEL TWA)	241 mg/m ³
	50 ppm
TGG-15min (OEL STEL)	723 mg/m ³
	150 ppm
Regulatory reference	Arbeidsomstandighedenregeling 2024
Reaction mass of ethylbenzene and xylene	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	221 mg/m ³
IOEL STEL	442 mg/m ³
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	210 mg/m ³
TGG-15min (OEL STEL)	442 mg/m ³

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):



Eye and face protection

Eye protection:

Safety glasses

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Eye protection			
Type	Field of application	Characteristics	Standard
Safety glasses			

Skin protection

Skin and body protection:

Wear suitable protective clothing

Skin and body protection	
Type	Standard
Tyvek® Gown/Coveralls	

Hand protection:

Protective gloves

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	> 0,1 mm	2 (< 1.5)	EN ISO 374

Respiratory protection

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Respiratory protection			
Device	Filter type	Condition	Standard
Reusable half mask	Filter A2/B2	Vapour protection	EN 143
Reusable half mask	Type P2	Dust protection	EN 143

Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless.
Appearance	: Liquid.
Odour	: Aromatic.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: ≥ 100 °C
Flammability	: Flammable liquid and vapour.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: 39 (≥ 39) °C
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: 125 mm ² /s
Viscosity, dynamic	: 300 (300 – 400) cP
Solubility	: Not miscible.
Partition coefficient n-octanol/water (Log Kow)	: Not available

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Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: 1.051 kg/l
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

Other safety characteristics

VOC content	: 326 g/l
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SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Inhalation:dust,mist: Harmful if inhaled.

Verharder PU1 - 2DN (Hardener)	
ATE CLP (dust,mist)	1.863 mg/l/4h
hexamethylene-di-isocyanate (822-06-0)	
LD50 oral rat	738 mg/kg
LD50 dermal rat	> 7000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat	0.124 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), 95% CL: 111 - 140
2-methoxy-1-methylethyl acetate (108-65-6)	
LD50 oral	8532 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 Inhalation - Rat	35.7 mg/l

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HDI oligomers, isocyanurate (28182-81-2)	
LD50 oral rat	> 2500 mg/kg
LD50 dermal rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit, Guideline: other:
LC50 Inhalation - Rat (Dust/Mist)	462 mg/l/4h
n-butyl acetate (123-86-4)	
LD50 oral rat	> 10000 mg/kg
LD50 dermal rabbit	> 14000 mg/kg
LC50 Inhalation - Rat (Vapours)	> 21 mg/l/4h
Solvent naphtha (petroleum), light arom. (64742-95-6)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 Inhalation - Rat (Vapours)	> 7630 mg/l/4h
Reaction mass of ethylbenzene and xylene	
LD50 dermal rabbit	12126 mg/kg bodyweight Animal: rabbit, Animal sex: male
LC50 Inhalation - Rat	29000 mg/l
Skin corrosion/irritation	: Causes skin irritation.
2-methoxy-1-methylethyl acetate (108-65-6)	
pH	4
n-butyl acetate (123-86-4)	
pH	6.2
Serious eye damage/irritation	: Causes serious eye irritation.
2-methoxy-1-methylethyl acetate (108-65-6)	
pH	4
n-butyl acetate (123-86-4)	
pH	6.2
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.
hexamethylene-di-isocyanate (822-06-0)	
STOT-single exposure	May cause respiratory irritation.
2-methoxy-1-methylethyl acetate (108-65-6)	
STOT-single exposure	May cause drowsiness or dizziness.
HDI oligomers, isocyanurate (28182-81-2)	
STOT-single exposure	May cause respiratory irritation.
n-butyl acetate (123-86-4)	
STOT-single exposure	May cause drowsiness or dizziness.

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Solvent naphtha (petroleum), light arom. (64742-95-6)	
STOT-single exposure	May cause drowsiness or dizziness. May cause respiratory irritation.
Reaction mass of ethylbenzene and xylene	
STOT-single exposure	May cause respiratory irritation.
2-methoxypropyl acetate (70657-70-4)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: May cause damage to organs through prolonged or repeated exposure.
2-methoxy-1-methylethyl acetate (108-65-6)	
NOAEL (dermal, rat/rabbit, 90 days)	> 1000 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 410 (Repeated Dose Dermal Toxicity: 21/28-Day Study)
HDI oligomers, isocyanurate (28182-81-2)	
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	3.3 mg/l/6h/day
n-butyl acetate (123-86-4)	
LOAEL (oral, rat, 90 days)	500 mg/kg bodyweight Animal: rat, Guideline: EPA OTS 798.2650 (90-Day Oral Toxicity in Rodents)
NOAEL (oral, rat, 90 days)	125 mg/kg bodyweight Animal: rat, Guideline: EPA OTS 798.2650 (90-Day Oral Toxicity in Rodents)
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	2.4 mg/l/6h/day
Reaction mass of ethylbenzene and xylene	
LOAEL (oral, rat, 90 days)	150 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: EPA OPP 82-1 (90-Day Oral Toxicity)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
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Viscosity, kinematic	125 mm²/s
HDI oligomers, isocyanurate (28182-81-2)	
Viscosity, kinematic	≈ 3292.043 mm²/s
n-butyl acetate (123-86-4)	
Viscosity, kinematic	0.83 mm²/s Temp.: '20°C' Parameter: 'kinematic viscosity (in mm²/s)'
Reaction mass of ethylbenzene and xylene	
Viscosity, kinematic	< 0.9 mm²/s
2-methoxypropyl acetate (70657-70-4)	
Viscosity, kinematic	≤ 20.5 mm²/s

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects.

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Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Harmful to aquatic life with long lasting effects.

2-methoxy-1-methylethyl acetate (108-65-6)	
LC50 - Fish [1]	> 100 mg/l
EC50 - Crustacea [1]	373 mg/l
EC50 72h - Algae [1]	> 1000 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
NOEC (chronic)	≥ 100 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	47.5 mg/l Test organisms (species): Oryzias latipes Duration: '14 d'

HDI oligomers, isocyanurate (28182-81-2)	
LC50 - Fish [1]	= 100 mg/l
EC50 - Crustacea [1]	127 mg/l
EC50 72h - Algae [1]	> 1000 mg/l

n-butyl acetate (123-86-4)	
LC50 - Fish [1]	81 (18 – 185) mg/l
LC50 - Fish [2]	18 mg/l
EC50 - Crustacea [1]	44 mg/l
EC50 72h - Algae [1]	200 mg/l
EC50 72h - Algae [2]	246 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
LOEC (chronic)	47.6 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	23.2 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

Reaction mass of ethylbenzene and xylene	
LC50 - Fish [1]	2.6 mg/l
EC50 - Crustacea [1]	> 3.4 mg/l Test organisms (species): Ceriodaphnia dubia
EC50 72h - Algae [1]	2.2 mg/l
LOEC (chronic)	3.16 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	> 1.3 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri) Duration: '56 d'

12.2. Persistence and degradability

Verharder PU1 - 2DN (Hardener)	
Persistence and degradability	Rapidly degradable
hexamethylene-di-isocyanate (822-06-0)	
Persistence and degradability	Rapidly degradable
2-methoxy-1-methylethyl acetate (108-65-6)	
Persistence and degradability	Rapidly degradable
HDI oligomers, isocyanurate (28182-81-2)	
Persistence and degradability	Rapidly degradable

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n-butyl acetate (123-86-4)

Persistence and degradability	Rapidly degradable
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Solvent naphtha (petroleum), light arom. (64742-95-6)

Persistence and degradability	Rapidly degradable
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Reaction mass of ethylbenzene and xylene

Persistence and degradability	Rapidly degradable
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2-methoxypropyl acetate (70657-70-4)

Persistence and degradability	Rapidly degradable
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12.3. Bioaccumulative potential

2-methoxy-1-methylethyl acetate (108-65-6)

Partition coefficient n-octanol/water (Log Pow)	1.2
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HDI oligomers, isocyanurate (28182-81-2)

Partition coefficient n-octanol/water (Log Pow)	9.81
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n-butyl acetate (123-86-4)

Partition coefficient n-octanol/water (Log Pow)	2.3
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Reaction mass of ethylbenzene and xylene

Partition coefficient n-octanol/water (Log Pow)	3.1
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2-methoxypropyl acetate (70657-70-4)

Partition coefficient n-octanol/water (Log Pow)	1.2
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Verharder PU1 - 2DN (Hardener)

PBT: not yet assessed

vPvB: not yet assessed

Component

Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	HDI oligomers, isocyanurate (28182-81-2)
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Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	HDI oligomers, isocyanurate (28182-81-2)
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12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Flammable vapours may accumulate in the container. Do not re-use empty containers.
European List of Waste (LoW, EC 2000/532)	: 08 01 11* - waste paint and varnish containing organic solvents or other dangerous substances 08 01 12 - waste paint and varnish other than those mentioned in 08 01 11

SECTION 14: Transport information

In accordance with ADR / RID

ADR	RID
14.1. UN number or ID number	
UN 1263	UN 1263
14.2. UN proper shipping name	
PAINT	PAINT
Transport document description	
UN 1263 PAINT, 3, III, (D/E)	UN 1263 PAINT, 3, III
14.3. Transport hazard class(es)	
3	3
	
14.4. Packing group	
III	III
14.5. Environmental hazards	
Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available	

14.6. Special precautions for user

Overland transport

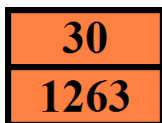
Classification code (ADR)	: F1
Special provisions (ADR)	: 163, 367, 650
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Special packing provisions (ADR)	: PP1
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T2
Portable tank and bulk container special provisions (ADR)	: TP1, TP29
Tank code (ADR)	: LGBF
Vehicle for tank carriage	: FL
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Operation (ADR)	: S2

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Hazard identification number (Kemler No.) : 30
Orange plates :



Tunnel restriction code (ADR) : D/E

Rail transport

Classification code (RID) : F1
Special provisions (RID) : 163, 367, 650
Limited quantities (RID) : 5L
Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Special packing provisions (RID) : PP1
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T2
Portable tank and bulk container special provisions (RID) : TP1, TP29
Tank codes for RID tanks (RID) : LGBF
Transport category (RID) : 3
Special provisions for carriage – Packages (RID) : W12
Colis express (express parcels) (RID) : CE4
Hazard identification number (RID) : 30

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

Reference code	Applicable on
3(b)	Verharder PU1 - 2DN (Hardener) ; HDI oligomers, isocyanurate ; n-butyl acetate ; hexamethylene-di-isocyanate
3(c)	Verharder PU1 - 2DN (Hardener)
3(a)	Verharder PU1 - 2DN (Hardener) ; n-butyl acetate

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

VOC Directive (2004/42)

VOC content : 326 g/l

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Decopaint Directive (2004/42/EC) - Annex II	: A/j (Paints and Varnishes - Two-pack reactive performance coatings for specific end use such as floors)
Maximum allowed concentration	: 500 g/l VOC
Maximum content of VOC	: 326.00 g/l VOC

Explosives Precursors Regulation (EU 2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (EC 273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

National regulations

Netherlands

ABM category	: Z(2) - biodegradable substances with hazardous properties for humans and the environment (carcinogenicity/ mutagenicity/reprotoxicity/bioaccumulative potential or toxicity)
SZW-lijst van kankerverwekkende stoffen	: Solvent naphtha (petroleum), light arom., 2-methoxypropyl acetate are listed
SZW-lijst van mutagene stoffen	: Solvent naphtha (petroleum), light arom., 2-methoxypropyl acetate are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	: 2-methoxypropyl acetate is listed

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

The information supplied has been based upon the current level of information available, for the purpose of specifying the requirements regarding environment, health and safety in conjunction with the product. They are not to be interpreted as a warranty. This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Indication of changes		
Section	Changed item	Comments
	Revision date	Modified
	Supersedes version of	Modified
1.2	Restrictions on use	Added
2.1	Adverse physicochemical, human health and environmental effects	Modified
2.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Modified
2.2	EUH-statements	Removed
2.2	Hazard pictograms (CLP)	Modified
2.2	Precautionary statements (CLP)	Modified
2.2	Hazard statements (CLP)	Modified
3	Composition/information on ingredients	Modified
4.1	First-aid measures after eye contact	Modified
4.2	Symptoms/effects after skin contact	Modified
4.2	Symptoms/effects	Removed
4.2	Symptoms/effects after eye contact	Added

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Indication of changes		
Section	Changed item	Comments
4.2	Symptoms/effects after inhalation	Modified
4.2	Symptoms/effects after ingestion	Added
5.1	Unsuitable extinguishing media	Added
5.2	Explosion hazard	Added
5.3	Firefighting instructions	Added
6.1	Emergency procedures	Modified
6.1	Emergency procedures	Added
6.1	Protective equipment	Added
6.1	General measures	Added
6.3	For containment	Added
7.1	Hygiene measures	Modified
7.1	Precautions for safe handling	Modified
7.1	Additional hazards when processed	Added
7.2	Packaging materials	Added
8.2	Personal protective equipment	Added
9	Appearance	Added
9	Viscosity, kinematic	Modified
9	Flammability (solid, gas)	Modified
11.1	ATE CLP (dust,mist)	Modified
13.1	Product/Packaging disposal recommendations	Added
13.1	Sewage disposal recommendations	Added
13.1	Regional legislation (waste)	Added
13.1	Additional information	Modified
15.1	REACH Annex XVII	Added
16	Abbreviations and acronyms	Modified

Abbreviations and acronyms:	
DPD	Dangerous Preparations Directive 1999/45/EC
DSD	Dangerous Substances Directive 67/548/EEC
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
ACGIH	American Conference of Governmental Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)

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Abbreviations and acronyms:	
CAS-No.	Chemical Abstracts Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative

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Abbreviations and acronyms:

UFI	Unique Formula Identifier
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Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Full text of H- and EUH-statements:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 1B	Reproductive toxicity, Category 1B
Resp. Sens. 1	Respiratory sensitisation, Category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
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.
H360D	May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

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Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Flam. Liq. 3	H226	On basis of test data
Acute Tox. 4 (Inhalation:dust,mist)	H332	Calculation method
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
STOT SE 3	H335	Calculation method
STOT RE 2	H373	Calculation method
Aquatic Chronic 3	H412	Calculation method

Safety Data Sheet applicable for regions : NL - Netherlands

Safety Data Sheet (SDS), EU

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