

according to Regulation (EC) No 1907/2006

TIP TOP HARDENER ER-42

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

1.1. Product identifier

TIP TOP HARDENER ER-42

Art.-No.

525 1116, 525 1118, 525 1151, 525 1156, 525 3254

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

Use of the substance/mixture

Hardener

1.3. Details of the supplier of the safety data sheet

Company name: REMA TIP TOP AG
Street: Gruber Strasse 65
Place: D-85586 Poing

Telephone: +49 (0) 8121 / 707 - 100

Responsible Department: Responsible for the safety data sheet: sds@gbk-ingelheim.de

<u>1.4. Emergency telephone</u> INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a) Public Poisons Information Line: +353 (0) 1 809 2166 (8am-10pm 7 days a

week)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Flam. Liq. 2; H225 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 Carc. 2; H351 STOT SE 3; H335 STOT SE 3; H336 STOT RE 2; H373

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

Ethyl acetate

Diphenylmethanediisocyanate, isomeres and homologues

Aromatic polyisocyanate

Tosyl isocyanate

Signal word: Danger

Pictograms:







Hazard statements

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

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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 statemen	nts			
P201	Obtain special instructions before use.			
P210	Keen away from heat, hot surfaces, snarks, onen flames and other ignition sources. No			

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

smoking.

P233 Keep container tightly closed. P260 Do not breathe vapour.

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

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

water or shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

Special labelling of certain mixtures

EUH204 Contains isocyanates. May produce an allergic reaction.

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

use.

2.3. Other hazards

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.

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 is 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

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Aromatic polyisocyanate



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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
141-78-6	Ethyl acetate			< 85 %
	205-500-4	607-022-00-5	01-2119475103-46	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE	3; H225 H319 H336 EUH066		
9016-87-9	Diphenylmethanediisocyanate, iso	meres and homologues		< 30 %
	618-498-9			
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, RE 2; H351 H332 H315 H319 H33	Eye Irrit. 2, Resp. Sens. 1, Skin Sens 4 H317 H335 H373	s. 1, STOT SE 3, STOT	
53317-61-6	Aromatic polyisocyanate			
	500-120-8			
	Eye Irrit. 2, Skin Sens. 1; H319 H3			
4083-64-1	Tosyl isocyanate			< 0,5 %
	223-810-8	615-012-00-7	01-2119980050-47	
	Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, STOT SE 3; H315 H319 H334 H335 EUH014			
91-08-7	Toluene-2,4-diisocyanate			
	202-039-0	615-006-00-4	01-2120140001-83	
	Carc. 2, Acute Tox. 2, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, Aquatic Chronic 3; H351 H330 H315 H319 H334 H317 H335 H412			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc.	Limits, M-factors and ATE	
141-78-6	205-500-4	Ethyl acetate	< 85 %
	dermal: LD50 =	= > 18000 mg/kg; oral: LD50 = 5620 mg/kg	
9016-87-9	618-498-9	Diphenylmethanediisocyanate, isomeres and homologues	< 30 %
	inhalation: ATE 2000 mg/kg mg	E = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); oral: LD50 = > 1/kg	
4083-64-1	223-810-8	Tosyl isocyanate	< 0,5 %
	Skin Irrit. 2; H3	15: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100 STOT SE 3; H335: >= 5 - 100	
91-08-7	202-039-0	Toluene-2,4-diisocyanate	< 0,1 %
	inhalation: ATE 1; H334: >= 0,1	E = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists) Resp. Sens 100	

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.

If you feel unwell, seek medical advice.

Take away from danger area and lay down affected person.

In case of the person being unconscious put him/her in a stable side position.

After inhalation

Move to fresh air in case of accidental inhalation of vapours or decomposition products.

Refer for medical treatment.

If patient is not breathing, apply artificial respiration.



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After contact with skin

Wash off with soap and plenty of water.

Consult a doctor if skin irritation persists.

Do not use solvents or thinners.

After contact with eyes

Remove contact lens.

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Seek medical treatment by eye specialist.

After ingestion

Do not induce vomiting.

Rinse out mouth and give plenty of water to drink.

Never give anything by mouth to an unconscious person.

Summon a doctor immediately.

Induce vomiting only upon the advice of a physician.

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

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure.

Causes serious eye irritation.

Causes skin irritation.

May cause respiratory irritation.

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

May cause an allergic skin reaction.

May cause drowsiness or dizziness.

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

Treat symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, dry chemical, carbon dioxide (CO2), water-spray.

Unsuitable extinguishing media

Full water jet.

5.2. Special hazards arising from the substance or mixture

Fire may produce:

Carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx).

Hydrogen cyanide (HCN)

Isocyanates (NCO).

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

Additional information

Cool containers at risk with water spray jet.

The vapour/air mixture is explosive, even in empty, uncleaned receptacles.

Vapours are heavier than air and spread along ground.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Use only explosion-proof equipment.

Ensure adequate ventilation.

Keep away sources of ignition.



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For non-emergency personnel

Do not breathe vapours.

Avoid contact with skin, eyes and clothing.

For emergency responders

In case of vapour formation use respirator.

Use personal protective clothing.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

Inform competent authority about release into the sewerage, ground or into waters.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder).

Shovel into suitable container for disposal.

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

No not container for disposal.

6.4. Reference to other sections

Observe protective instructions (see Sections 7 and 8).

Informations for disposal look up chapter 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Keep container tightly closed.

Keep a good ventilation and air-exhaust at the place of work.

Vapours are heavier than air and spread along ground.

Avoid contact with the skin and the eyes.

When using do not eat, drink or smoke.

Do not empty container under pressure. No pressure tank!

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Advice on protection against fire and explosion

Keep away from heat and sources of ignition.

Do not smoke.

Take precautionary measures against static discharges.

Use only explosion-proof equipment.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a dry, cool and well-ventilated place.

Pay attention to anti-explosion protection rules.

Protect from heat and direct solar radiation.

Hints on joint storage

Incompatible with:

Oxidizing agents

Acids and bases.

Water, amines, alcohols

Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
141-78-6	Ethyl acetate	200	734		TWA (8 h)	
		400	1468		STEL (15 min)	
-	Isocyanates (all, as -NCO)	-	0.02		TWA (8 h)	
		-	0.07		STEL (15 min)	
91-08-7	Toluene-2,6-diisocyanate (as -NCO) (Inhalable Fraction and Vapour)	0.001	-		TWA (8 h)	
	, ,	0.003	_		STEL (15 min)	

8.2. Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures

Do not inhale vapours.

Wash hands before breaks and immediately after handling the product.

When using do not eat, drink or smoke.

Treat subsequently with skin cream.

Avoid contact with skin, eyes and clothing.

Remove and wash contaminated clothing before re-use.

Eye/face protection

Safety goggles with side protection (splash protection) or tightly fitting goggles (EN 166) Eye wash bottle with pure water (EN 15154).

Hand protection

Splash protection:

Protective gloves resistant to chemicals made off nitrile, Minimum coat thickness 0.4 mm, Permeation resistance (wear duration) > 10 minutes.

Protective gloves resistant to chemicals made off butyl, Minimum coat thickness 0,7 mm, Permeation resistance (wear duration) > 60 minutes, i.e. protective glove <Butoject 898> made by www.kcl.de.

This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions.

Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Skin protection

Long sleeved clothing (DIN EN ISO 6530)

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment (gas filter type A) (EN 14387).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Colour: Yellowish
Odour: Characteristic

pH-Value: n. d.

Changes in the physical state



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Melting point/freezing point:	n. d.	
Boiling point or initial boiling point and	77 °C	
boiling range: Sublimation point:	n.a.	
Softening point:	n. d.	
Pour point:	n. d.	
Flash point:	- 4 °C	
Sustaining combustion:	Sustaining combustion	
Flammability Solid/liquid:	n.a.	
Explosive properties The product is considered non-explosiv	e; nethertheless explosive vapour/air mixture can be generat	ted.
Lower explosion limits:	2,1 vol. %	
Upper explosion limits:	11,5 vol. %	
Auto-ignition temperature:	n. d.	
Self-ignition temperature		
Solid:	n.a.	
Gas:	n.a.	
Decomposition temperature:	n. d.	
Oxidizing properties Not oxidising.		
Vapour pressure: (at 20 °C)	97 hPa	
Density (at 20 °C):	0,97 g/cm³	
Bulk density:	n.a.	
Water solubility: (at 20 °C)	Immiscible	
Solubility in other solvents n. d.		
Partition coefficient n-octanol/water:	n. d.	
Viscosity / dynamic:	n. d.	
Viscosity / kinematic:	n. d.	
Flow time:	n. d.	
Relative vapour density:	n. d.	
Evaporation rate:	n. d.	
Solvent separation test:	n. d.	
Solvent content:	n. d.	
9.2. Other information		
Solid content:	26 %	

SECTION 10: Stability and reactivity

10.1. Reactivity

No decomposition if stored and applied as directed.

10.2. Chemical stability

Stable under normal conditions.



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10.3. Possibility of hazardous reactions

Reactions with acids, alkalies and oxidising agents.

Reacts with: Water, amines, alcohols

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.

Heating can release vapours which can be ignited.

Vapour/air-mixtures are explosive at intense warming.

10.5. Incompatible materials

Strong oxidizing agents

Strong acids and strong bases

Water, amines, alcohols

10.6. Hazardous decomposition products

No hazardous decomposition products known.

Fire may produce:

Carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx)

Hydrogen cyanide gas.

Isocyanates

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.

No toxical dates available.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Sensitising effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (Diphenylmethanediisocyanate, isomeres and homologues; Tosyl isocyanate; Toluene-2,4-diisocyanate)

May cause an allergic skin reaction. (Diphenylmethanediisocyanate, isomeres and homologues; Aromatic polyisocyanate; Toluene-2,4-diisocyanate)

Contains isocyanates. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (Diphenylmethanediisocyanate, isomeres and homologues;

Toluene-2,4-diisocyanate)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

STOT-single exposure

 $\label{thm:may-cause} \mbox{May cause respiratory irritation. (Diphenylmethanediisocyanate, isomeres and homologues)}$

May cause drowsiness or dizziness. (Ethyl acetate)

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (Diphenylmethanediisocyanate, isomeres and homologues)

Aspiration hazard

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

Additional information on tests

Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.



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11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Inhalation of high concentrations may cause injuries to liver, kidneys and central nervous system.

A longer or repeated contact my lead to irritation of eyes and mucous membranes.

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

With hypersensitive people, reactions as cough or difficulty of breathing may appear even with tiny concentrations of isocyanates; therefore keep room aerated and ventilated.

SECTION 12: Ecological information

12.1. Toxicity

Ecological dates are not available.

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

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

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

No data available

12.7. Other adverse effects

Slightly water hazardous.

Further information

Do not flush into surface water or sanitary sewer system. In aqueous systems, formation of unsoluble and chemically inert (inactive) polyureas.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Can be incinerated, when in compliance with local regulations.

Where possible recycling is preferred to disposal.

List of Wastes Code - residues/unused products

080111 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF

COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU and removal of paint and varnish; waste paint and varnish

containing organic solvents or other hazardous substances; hazardous waste

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.



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Packaging that cannot be cleaned should be disposed of like the product.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:UN 113314.2. UN proper shipping name:Adhesives

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Classification code: F1

Limited quantity: 5 L / 30 kg

Excepted quantity: E2
Transport category: 2
Hazard No: 33
Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number:UN 113314.2. UN proper shipping name:Adhesives

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Classification code: F1

Limited quantity: 5 L / 30 kg Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number:UN 113314.2. UN proper shipping name:Adhesives

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Marine pollutant:

Limited quantity:

Excepted quantity:

E2

EmS:

F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:UN 113314.2. UN proper shipping name:ADHESIVES

14.3. Transport hazard class(es): 3



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14.4. Packing group:IIHazard label:3



Special Provisions:

Limited quantity Passenger:

Passenger LQ:

Excepted quantity:

A3

1 L

Y341

Excepted quantity:

E2

IATA-packing instructions - Passenger: 353
IATA-max. quantity - Passenger: 5 L
IATA-packing instructions - Cargo: 364
IATA-max. quantity - Cargo: 60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Handle in accordance with good industrial hygiene and safety practice.

14.7. Maritime transport in bulk according to IMO instruments

The transport takes place only in approved and appropriate packaging.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII): Entry 3, Entry 40, Entry 74, Entry 75

Directive 2010/75/EU on industrial 73,75%; 717,29 g/l

emissions:

Information according to Directive

2012/18/EU (SEVESO III):

P5c FLAMMABLE LIQUIDS

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile

work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or

nursing mothers.

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,15.



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Abbreviations and acronyms

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route

RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses

ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure

IMDG = International Maritime Code for Dangerous Goods

IATA/ICAO = International Air Transport Association / International Civil Aviation Organization

MARPOL = International Convention for the Prevention of Pollution from Ships

IBC-Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

REACH = Registration, Evaluation, Authorization and Restriction of Chemicals

CAS = Chemical Abstract Service

EN = European norm

ISO = International Organization for Standardization

DIN = Deutsche Industrie Norm

PBT = Persistent Bioaccumulative and Toxic

vPvB = Very Persistent and very Bio-accumulative

LD = Lethal dose

LC = Lethal concentration

EC = Effect concentration

IC = Median immobilisation concentration or median inhibitory concentration

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

- classification for mixtures and account method according to regulation (20) its 12122000 [CE.]		
Classification	Classification procedure	
Flam. Liq. 2; H225	On basis of test data	
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	

Relevant H and EUH statements (number and full text)

	tomorius (mammus ama rum toxto)
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
EUH014	Reacts violently with water.
EUH066	Repeated exposure may cause skin dryness or cracking.
EUH204	Contains isocyanates. May produce an allergic reaction.

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Further Information

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.

The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge.

The delivery specifications are contained in the corresponding product sheet.

This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

"(n.a. = not applicable; n.d. = not determined)"

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)