



# Safety Data Sheet

according to UK REACH Regulation

## TIP TOP HARDENER No. 4

Revision date: 31.03.2022

Product code: 00359-1066

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### Pictograms:



### Hazard statements

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H360D	May damage the unborn child.
H412	Harmful to aquatic life with long lasting effects.

### Precautionary statements

P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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.
P273	Avoid release to the environment.

### Special labelling of certain mixtures

Restricted to professional users.

### 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

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### Chemical characterization

Hardener based on aliphatic polyamines

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**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
2855-13-2	3-Aminomethyl-3,5,5-trimethylcyclohexylamine			< 35 %
	220-666-8	612-067-00-9	01-2119514687-32	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1A; H302 H314 H318 H317			
25513-64-8	2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine			< 30 %
	247-063-2		01-2119569598-25	
	Acute Tox. 4, Skin Corr. 1A, Eye Dam. 1, Skin Sens. 1; H302 H314 H318 H317			
1675-54-3	bis-[4-(2,3-epoxipropoxy)phenyl]propane			< 25 %
	216-823-5	603-073-00-2	01-2119456619-26	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H319 H317 H411			
100-51-6	Benzyl alcohol			< 20 %
	202-859-9	603-057-00-5	01-2119492630-38	
	Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2; H332 H302 H319			
288-32-4	1,3-Diaza-2,4-cyclopentadiene			< 5 %
	206-019-2		01-2119485825-24	
	Repr. 1B, Acute Tox. 4, Skin Corr. 1C, Eye Dam. 1; H360D H302 H314 H318			
919-30-2	3-aminopropyltriethoxysilane			< 1 %
	213-048-4	612-108-00-0	01-2119480479-24	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1; H302 H314 H318 H317			

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		
2855-13-2	220-666-8	3-Aminomethyl-3,5,5-trimethylcyclohexylamine	< 35 %
	oral: ATE 1030 mg/kg Skin Sens. 1A; H317: >= 0,001 - 100		
25513-64-8	247-063-2	2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine	< 30 %
	oral: LD50 = 910 mg/kg		
1675-54-3	216-823-5	bis-[4-(2,3-epoxipropoxy)phenyl]propane	< 25 %
	Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100		
100-51-6	202-859-9	Benzyl alcohol	< 20 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); oral: LD50 = 1230 mg/kg		
288-32-4	206-019-2	1,3-Diaza-2,4-cyclopentadiene	< 5 %
	oral: LD50 = 970 mg/kg		
919-30-2	213-048-4	3-aminopropyltriethoxysilane	< 1 %
	dermal: LD50 = 3800 mg/kg; oral: LD50 = 1780 mg/kg		

**SECTION 4: First aid measures****4.1. Description of first aid measures****General information**

Remove contaminated soaked clothing immediately.  
Call a physician immediately.



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#### After inhalation

Move to fresh air in case of accidental inhalation of vapours.  
In the event of symptoms refer for medical treatment.

#### After contact with skin

In case of contact with skin wash off immediately with plenty of water.  
Seek medical treatment immediately.

#### After contact with eyes

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

#### After ingestion

Do not induce vomiting.  
Summon a doctor immediately.  
Induce vomiting only upon the advice of a physician.  
Attention. Beware, danger of aspiration.

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

Harmful if swallowed.  
Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.  
May cause harm to the unborn child.

#### 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 (CO<sub>2</sub>), 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 (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>)

#### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

#### Additional information

Cool containers at risk with water spray jet.  
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

Ensure adequate ventilation.  
Keep away noninvolved persons.

##### 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.



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### 6.2. Environmental precautions

Do not discharge into the drains/surface waters/ground water.

### 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.

Clean contaminated surface thoroughly.

### 6.4. Reference to other sections

Observe protective instructions (see Sections 7 and 8).

Information for disposal see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

Keep container tightly closed.

Handle and open container with care.

Use only in thoroughly ventilated areas.

Avoid contact with skin, eyes and clothing.

#### Advice on protection against fire and explosion

No special protective measures against fire required.

### 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.

Protect against direct sun radiation.

#### Hints on joint storage

Incompatible with:

Oxidizing agents, Amines, Acids and bases.

#### Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

### 7.3. Specific end use(s)

Hardener

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
100-51-6	Benzyl alcohol			
Worker DNEL, long-term		inhalation	systemic	22 mg/m <sup>3</sup>
Worker DNEL, acute		inhalation	systemic	110 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	8 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	40 mg/kg bw/day

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**PNEC values**

CAS No	Substance	Value
Environmental compartment		
100-51-6	Benzyl alcohol	
Freshwater		1 mg/l
Marine water		0,1 mg/l
Freshwater sediment		5,27 mg/kg
Marine sediment		0,527 mg/kg
Soil		0,456 mg/kg

**Additional advice on limit values**

To date, no national critical limit values exist.

**8.2. Exposure controls****Appropriate engineering controls**

Ensure adequate ventilation, especially in confined areas.

**Protective and hygiene measures**

Wash hands before breaks and immediately after handling the product.

When using do not eat, drink or smoke.

Avoid contact with skin, eyes and clothing.

Remove and wash contaminated clothes before re-use.

**Eye/face protection**

Tightly fitting goggles (EN 166).

Eye wash bottle with pure water (EN 15154).

**Hand protection**

Chemical protective gloves made of nitrile, nitrile/cotton, butyl or neoprene, with a minimum thickness of 0.7 mm, permeation time of approx. 480 minutes.

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.

Pls. find examples in the protective gloves database under: <http://bestglove.com/site/chemrest/>

**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:	Amine like

**Test method****Changes in the physical state**

Melting point/freezing point:	n.d.
Boiling point or initial boiling point and boiling range:	n.d.
Sublimation point:	n.a.
Softening point:	n.d.

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Flash point:	> 100 °C
<b>Flammability</b>	
Solid/liquid:	n.a.
Gas:	n.a.
<b>Explosive properties</b>	
The product is not explosive.	
Lower explosion limits:	n.d.
Upper explosion limits:	n.d.
Auto-ignition temperature:	n.d.
<b>Self-ignition temperature</b>	
Solid:	n.a.
Gas:	n.a.
Vapour pressure:	n.d.
Density (at 20 °C):	0,99 - 1,04 g/cm <sup>3</sup>
Bulk density:	n.a.
Water solubility: (at 20 °C)	Immiscible
<b>Solubility in other solvents</b>	
n.d.	
Partition coefficient n-octanol/water:	n.d.
Viscosity / dynamic: (at 25 °C)	650 - 800 mPa·s
Viscosity / kinematic:	n.d.
Flow time: (at 25 °C)	> 40 s 6 DIN/ISO 2431
Relative vapour density:	n.d.
Evaporation rate:	n.d.
Solvent separation test:	n.d.
Solvent content:	n.d.

**9.2. Other information**

No data available

**SECTION 10: Stability and reactivity****10.1. Reactivity**

No decomposition if stored and applied as directed.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**Reactions with acids, alkalies and oxidizing agents  
Reactions with amines.**10.4. Conditions to avoid**To avoid thermal decomposition, do not overheat.  
Protect against direct sun radiation.  
Polymerisation occurs when exposed to heat.**10.5. Incompatible materials**

Oxidizing agents, Amines, Acids and bases.



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#### 10.6. Hazardous decomposition products

No hazardous decomposition products known.

Fire may produce:

Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>)  
ammonia

### SECTION 11: Toxicological information

#### 11.1. Information on hazard classes as defined in GB CLP Regulation

##### Acute toxicity

Harmful if swallowed.

No toxicological data available.

ATEmix/oral: approx. 1300 mg/kg

ATEmix/dermal: > 2000 mg/kg

ATEmix/inhalation: > 20 mg/l

##### ATEmix calculated

ATE (oral) 1291,9 mg/kg

##### Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

##### Sensitising effects

May cause an allergic skin reaction. (3-Aminomethyl-3,5,5-trimethylcyclohexylamine; 2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine; bis-[4-(2,3-epoxypropoxy)phenyl]propane; 3-aminopropyltriethoxysilane)

##### Carcinogenic/mutagenic/toxic effects for reproduction

May damage the unborn child. (1,3-Diaza-2,4-cyclopentadiene)

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

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

##### STOT-single exposure

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

##### STOT-repeated exposure

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

##### 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.

#### 11.2. Information on other hazards

##### Endocrine disrupting properties

No data available

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecological data are not available.

Harmful to aquatic life with long lasting effects.

Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)

LC50/Oncorhynchus mykiss/96 h = 2 mg/l

EC50/Daphnia magna/48 h = 1,8 mg/l

ErC50/Scenedesmus capricornutum/72 h = 11 mg/l

#### 12.2. Persistence and degradability

Not readily biodegradable.

Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)

Biodegradable (OECD): 12% / 28 d [OECD 302 B]



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#### **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 UK REACH.

#### **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.

#### **12.7. Other adverse effects**

Hazardous water pollutant.

#### **Further information**

Do not flush into surface water or sanitary sewer system.

### SECTION 13: Disposal considerations

#### **13.1. Waste treatment methods**

##### **Disposal recommendations**

Where possible recycling is preferred to disposal.

Can be incinerated, when in compliance with local regulations.

##### **List of Wastes Code - residues/unused products**

080409 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of adhesives and sealants (including waterproofing products); waste adhesives and sealants containing organic solvents or other hazardous substances; hazardous waste

##### **Contaminated packaging**

Contaminated packagings are to be treated like the product itself.

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

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 3267

##### **14.2. UN proper shipping name:**

CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.  
(Trimethylhexane-1,6-diamine,  
3-Aminomethyl-3,5,5-trimethylcyclohexylamine)

##### **14.3. Transport hazard class(es):**

8

##### **14.4. Packing group:**

III

Hazard label:

8



Classification code:

C7

Limited quantity:

5 L / 30 kg

Excepted quantity:

E1

Transport category:

3

Hazard No:

80

Tunnel restriction code:

E

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#### Inland waterways transport (ADN)

**14.1. UN number:**

UN 3267

**14.2. UN proper shipping name:**CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.  
(Trimethylhexane-1,6-diamine,  
3-Aminomethyl-3,5,5-trimethylcyclohexylamine)**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Classification code:

C7

Limited quantity:

5 L / 30 kg

Excepted quantity:

E1

#### Marine transport (IMDG)

**14.1. UN number:**

UN 3267

**14.2. UN proper shipping name:**CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Isophoronediamine  
and trimethylhexamethylene diamine)**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Marine pollutant:

No

Limited quantity:

5 L / 30 kg

Excepted quantity:

E1

EmS:

F-A, S-B

#### Air transport (ICAO-TI/IATA-DGR)

**14.1. UN number:**

UN 3267

**14.2. UN proper shipping name:**CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Isophoronediamine  
and trimethylhexamethylene diamine, solution)**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Limited quantity Passenger:

1 L

Passenger LQ:

Y841

Excepted quantity:

E1

IATA-packing instructions - Passenger:

852

IATA-max. quantity - Passenger:

5 L

IATA-packing instructions - Cargo:

856

IATA-max. quantity - Cargo:

60 L

#### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No



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**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 30, Entry 75

2004/42/EC (VOC): 0 %

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

**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):

2 - obviously hazardous to water

**Additional information**

Consider Chemical prohibition regulation.

**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): 2,6,7,9,10,11,12,13,14,15.

**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

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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 GB CLP Regulation**

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Skin Corr. 1A; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Repr. 1B; H360D	Calculation method
Aquatic Chronic 3; H412	Calculation method

**Relevant H and EUH statements (number and full text)**

H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H360D May damage the unborn child.  
H411 Toxic to aquatic life with long lasting effects.  
H412 Harmful to aquatic life with long lasting effects.

**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 hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*