



**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER No. 4**

Revision date: 14.03.2018

Product code: 00359-1066

Page 2 of 10

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**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
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.
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.
P405	Store locked up.
P273	Avoid release to the environment.

**Special labelling of certain mixtures**

EUH205	Contains epoxy constituents. May produce an allergic reaction. 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.

**SECTION 3: Composition/information on ingredients****3.2. Mixtures****Chemical characterization**

Hardener based on aliphatic polyamines

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER No. 4**

Revision date: 14.03.2018

Product code: 00359-1066

Page 3 of 10

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
2855-13-2	3-Aminomethyl-3,5,5-trimethylcyclohexylamine			< 35 %
	220-666-8	612-067-00-9	01-2119514687-32	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H317 H412			
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. 1B, Skin Sens. 1, Aquatic Chronic 3; H302 H314 H317 H412			
25068-38-6	Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight <= 700)			< 25 %
	500-033-5	603-074-00-8	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; H360D H302 H314			
919-30-2	3-aminopropyltriethoxysilane			< 1 %
	213-048-4	612-108-00-0	01-2119480479-24	
	Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1; H302 H314 H317			

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

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

Remove contaminated soaked clothing immediately.  
Call a physician immediately.

**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.



## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER No. 4

Revision date: 14.03.2018

Product code: 00359-1066

Page 4 of 10

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**

In case of vapour formation use respirator.  
Ensure adequate ventilation.  
Use personal protective clothing.

#### **6.2. Environmental precautions**

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

#### **6.3. Methods and material for containment and 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.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER No. 4**

Revision date: 14.03.2018

Product code: 00359-1066

Page 5 of 10

**Advice on storage compatibility**

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****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 (EN 368).

**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**

Flash point:	> 100 °C
Lower explosion limits:	n.d.
Upper explosion limits:	
Ignition temperature:	n.d.
Density (at 20 °C):	0,99 - 1,04 g/cm <sup>3</sup>

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER No. 4**

Revision date: 14.03.2018

Product code: 00359-1066

Page 6 of 10

Water solubility: (at 20 °C)	Immiscible
Viscosity / dynamic: (at 25 °C)	650 - 800 mPa·s
Flow time: (at 25 °C)	> 40 s 6 DIN/ISO 2431

**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.

**10.6. Hazardous decomposition products**

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 toxicological effects****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

**Irritation and corrosivity**

Causes severe skin burns and 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; Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700); 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.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER No. 4**

Revision date: 14.03.2018

Product code: 00359-1066

Page 7 of 10

**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.

**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 &lt;= 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 &lt;= 700)

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

**12.3. Bioaccumulative potential**

No data available.

**12.4. Mobility in soil**

No data available.

**12.5. Results of PBT and vPvB assessment**

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

**12.6. 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****Advice on disposal**

Where possible recycling is preferred to disposal.

Can be incinerated, when in compliance with local regulations.

**Waste disposal number of waste from 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

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER No. 4

Revision date: 14.03.2018

Product code: 00359-1066

Page 8 of 10

**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

#### 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

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER No. 4

Revision date: 14.03.2018

Product code: 00359-1066

Page 9 of 10

#### 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

#### 14.6. Special precautions for user

Handle in accordance with good industrial hygiene and safety practice.

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

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 30: 1,3-Diaza-2,4-cyclopentadiene

2004/42/EC (VOC):

0 %

Information according to 2012/18/EU (SEVESO III):

P5c FLAMMABLE LIQUIDS

##### National regulatory information

Employment restrictions:

Observe restrictions to employment for juvenils 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 contaminating class (D):

2 - clearly water contaminating

##### 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

#### 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

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER No. 4**

Revision date: 14.03.2018

Product code: 00359-1066

Page 10 of 10

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

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

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
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.
EUH205	Contains epoxy constituents. May produce an allergic reaction.

**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.)*