



# EC safety data sheet

Trade name: HARDENER H1

Status: 01.03.02

Product no.: 3519xx005

Version : 1 / GB

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## 1.) Identification of the substance/preparation and company

### Product details

#### Trade name

HARDENER H1

### Identification of the manufacturer / supplier

#### Address

Marabuwerke GmbH & Co. KG  
Asperger Straße 4  
D-71732 Tamm, Germany

Telephone no. +49 7141/691-0

Fax no. +49 7141/691-235

#### Information provided by / telephone

product safety/+49 7141/691-116 or 232

#### Emergency telephone number

product safety/+49 7141/691-116 or 232

## 2.) Composition / information on ingredients

### Chemical characterization

Polyfunctional aliphatic isocyanate in solvents

### Hazardous ingredients

#### ALIPHATIC POLYISOCYANATE

CAS no.	28182-81-2			
Concentration	>= 70	< 75		%-b.w.
Hazard symbols	Xi	R phrases	43	

#### XYLENE

CAS no.	1330-20-7			
Concentration	>= 10	< 15		%-b.w.
Hazard symbols	Xn	R phrases	10, 20/21, 38	

#### 2-METHOXY-1-METHYLETHYL ACETATE

CAS no.	108-65-6			
Concentration	>= 10	< 15		%-b.w.
Hazard symbols	Xi	R phrases	10, 36	

#### ETHYLBENZENE

CAS no.	100-41-4			
Concentration	>= 1	< 5		%-b.w.
Hazard symbols	Xn, F	R phrases	11, 20	

#### HEXAMETHYLENE-DIISOCYANATE

CAS no.	822-06-0			
Concentration	< 0,5			%-b.w.
Hazard symbols	T	R phrases	23, 36/37/38, 42/43	

## 3.) Hazards possibilities

### Hazard symbols

Xn Harmful

### R phrases

10	Flammable.
20	Harmful by inhalation.
43	May cause sensitization by skin contact.



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### Particular information pertaining specific risk for human / environment

The product is water polluting.

## 4.) First aid measures

### General information

Immediately remove all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical attention. Unconsciousness: lateral position - call a physician.

### After inhalation

Take the casualty into the fresh air and keep warm. Irregular breathing/no breathing: artificial respiration. Call a physician.

### After skin contact

Wash away with soap and water and rinse. Do NOT use solvents or thinners!

### After eye contact

Flush with plenty of water (10 - 15 min.). Call a physician.

### After ingestion

Call a doctor. Keep at rest. Do not induce vomiting.

## 5.) Firefighting measures

### Suitable extinguishing media

Carbon dioxide, foam, sand, dry extinguishing agent.

### Extinguishing media that must not be used for safety reasons

Waterjet should not be used because water is not mixable with a lot of organic solvents and such solvents will spread on the water surface.

### Special exposure hazards arising from the substance or preparation itself, its combustion products or from resulting gases

In case of fire, dangerous smoke gases such as carbon dioxide, carbon monoxide, soot, nitrogen oxides, isocyanate vapours and traces of cyanic acids can be produced. Therefore, take suitable precautionary measures for fire fighting. Residues remaining after a fire have to be disposed of appropriately.

### Special protective equipment for firefighting

Breathing apparatus with an independent source of air may be required.

### Other information (chapter 5.)

Cool endangered containers with water in case of fire.

## 6.) Accidental release measures

### Personal precautions

Keep away from sources of ignition. Provide for good ventilation. Do not breathe vapours. Refer to protective measures listed in sections 7 and 8.

### Environmental precautions

Do not empty into drains. If the product contaminates lakes, rivers or sewages, inform appropriate authorities in accordance with local regulations.

### Methods for cleaning up/taking up

Cover with humid liquid absorbing material (e.g. sand or sawdust). After about one hour, take off into waste bin, but do not cover (carbon dioxide development). Keep damp and allow to stand in a secure area in the open air, for a few more days. Further disposal by incineration (see point 13). The contaminated area should be cleaned up immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) concentrated ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts), water (95 parts).



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## 7.) Handling and storage

### Handling

#### Advice on safe handling

Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limit. Do not leave containers open. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Avoid contact with skin and eyes. Avoid inhalation of vapour and spray mist. When using do not eat, drink or smoke. Comply with the health and safety at work laws.

#### Advice on protection against fire and explosion

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Preparation may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear antistatic footwear and clothing. No sparking tools should be used.

#### Classification of fires

B (Combustible liquid substances)

#### Ignition group

T1

### Storage

#### Requirements for storage rooms and vessels

Recommended storage temperature: 15-20°C. Keep container tightly closed. Never use pressure to empty: container is not a pressure vessel. No smoking. Prevent unauthorized access. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

#### Hints on storage assembly

Keep away from oxidising agents, from strongly alkaline and strongly acid materials as well as from amines, alcohols and water.

#### Further information on storage conditions

Always keep in containers of same material as the original one. Precautions should be taken to minimise exposure to atmospheric humidity or water: CO<sub>2</sub> will be formed which in closed containers can result in pressuration; danger of bursting!; Observe label precautions. Store between 15 and 20°C in a dry, well ventilated place away from sources of heat and direct sunlight. Keep away from sources of ignition.

## 8.) Exposure controls / personal protection

#### Additional hints on technical system design.

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. During spraying, even in well ventilated conditions, wear breathing apparatus which is not dependent on the air in the immediate vicinity. Otherwise, if the local exhaust ventilation or general extraction is not sufficient to maintain concentration of solvent vapour below the OEL, suitable respiratory protection must be worn.

#### Ingredients with occupational exposure limits to be monitored

##### XYLENE

CAS no.	1330-20-7			
EINECS no.	215-535-7			
OES/EH40				
LTEL	100	ml/m <sup>3</sup>	441	mg/m <sup>3</sup>
STEL	150	ml/m <sup>3</sup>	662	mg/m <sup>3</sup>
Skin resorption / sensibilisation	Sk			



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### ETHYLBENZENE

CAS no. 100-41-4  
EINECS no. 202-849-4

OES/EH40

LTEL 100 ml/m<sup>3</sup> 441 mg/m<sup>3</sup>  
STEL 125 ml/m<sup>3</sup> 552 mg/m<sup>3</sup>

### Personal protective equipment

#### Respiratory protection

By spraying: air fed respirator. By other operations than spraying: in well ventilated areas, airfed respirators could be replaced by a combination of charcoal filter and particulate filter mask.

Respiratory filter (gas) : A

Respiratory filter (part): P2

#### Hand protection

Use protective gloves.

#### Eye protection

Use safety glasses.

#### Skin protection

Personal should wear antistatic clothing made of natural fiber or of high temperature resistant synthetic fiber. All parts of the body should be washed after contact. Use re-greasing skin cream.

#### General protective and hygiene measures

The usual precautionary measures for the handling of chemicals have to be observed.

## 9.) Physical and chemical properties

#### Appearance

Form liquid  
Colour clear, yellow-tinged  
Odour characteristic

#### Safety data

##### Changes in physical state

Type Boiling point (initial)  
Value 145 °C

##### Flash point

Value 38 °C  
Method ASTM D 6450 (CCCFP)

##### Ignition temperature

Value 460 °C

##### Explosion limits

Upper explosion limit 10,8 % vol  
Lower explosion limit 1,0 % vol

##### Vapour pressure

Value 7 9 hPa  
Reference temperature 20 °C

##### Density

Value 1,07 g/cm<sup>3</sup>  
Reference temperature 20 °C



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### Viscosity

Type	Flow time		
Value	59		sec
Method	DIN-cup 4 mm		
Reference temperature	20	°C	
Type	dynamic		
Value	ca 225		mPa*s
Reference temperature	23	°C	

### Solubility in water

Remarks parts of solvents

### pH value

Remarks inapplicable

### Other information (chapter 9.)

The physical specifications are approximate values and refer to the used safety relevant component(s).

## 10.) Stability and reactivity

### Conditions to avoid

Stable under recommended storage and handling conditions (See section 7).

### Materials to avoid

Keep away from oxidising agents, strongly alkaline and strongly acid materials. Exothermic reactions occur with amines and alcohols. Preparation reacts slowly with water resulting in evolution of CO<sub>2</sub> which produces a risk of bursting in closed containers.

### Hazardous decomposition products

When exposed to high temperatures, dangerous decomposition products such as carbon dioxide, carbon monoxide, soot, nitrogen oxides, isocyanate vapours and traces of cyanic acids can be produced.

## 11.) Toxicological information

### Experience in practice

Exposure to component solvents vapours concentration in excess of the stated occupational exposure limit may result in adverse health effect such as mucous membrane and respiratory system irritation and adverse effect on kidney, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Solvents may cause symptoms like described above by absorption through the skin. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and absorption through the skin. Splashes in the eyes may cause pronounced burning pains. If swallowed, stomach complaints and irritation of the digestive organs may result.

### Other information (chapter 11.)

Based on the properties of the isocyanate components and considering toxicological data on similar preparations, this preparation may cause acute irritation and/or sensitization of the respiratory system leading to an asthmatic condition, wheeziness and a tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. The product was classified in toxicological terms on the basis of the results of the calculation procedure outlined within General Directive on Preparations (88/379/EEC).



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## 12.) Ecological information

### General information / ecology

There are no data available on the preparation itself.  
Do not empty into waters or drains

## 13.) Disposal considerations

### Product

Small residues in containers can be converted by a blend of isopropanol, ammonia and water (see also point 6). Remove classification labels afterwards. Dispose of large quantities in semi-reactivated form in accordance with the applicable regulations.

Code of waste pursuant to European Council Directive on waste: 080302 (Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesive, sealants and printing inks - wastes from MFSU of printing inks - waste ink free of halogenated solvents).

### Uncleaned packaging

Dispose of only completely emptied containers!

Code of waste pursuant on European Council Directive on waste: 150104 (Packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified - packaging - metallic).

## 14.) Transport information

### Land transport ADR/RID

Class	3	31	c
Hazard id. no.	30		
Label	3		
UN number	1263		
Technical name	Paint related material		

### Marine transport IMDG/GGVSee

Class	3.3
Packaging group	III
UN number	1263
Proper shipping name	Paint related material
EmS	3-05
MFAG	310
MARPOL	---
Label	3

### Air transport ICAO/IATA

Class	3
Packaging group	III
UN number	1263
Proper shipping name	Paint related material
Label	3

## 15.) Regulatory information

### Hazard symbols

Xn Harmful

### Hazardous component(s) to be indicated on label

ALIPHATIC POLYISOCYANATE



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### R phrases

10	Flammable.
20	Harmful by inhalation.
43	May cause sensitization by skin contact.

### S phrases

20/21	When using do not eat, drink or smoke.
24/25	Avoid contact with skin and eyes.
29	Do not empty into drains.
51	Use only in well-ventilated areas.

## 16.) Other information

### Other information

According to their chemical structure, the applied raw materials do not contain any antimony, arsenic, soluble barium, lead, cadmium, chromium, mercury and selenium.

### Department issuing safety data sheet

Laboratory/product safety.

### Contact person

Dipl.-Chem. G. Heller or Dipl.-Ing. U. Voetter.

The instructions are based on today's information and knowledge. The safety data sheet describes products in relation to safety requirements. These instructions do not assure application technological properties of the product.

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