

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

1.1. Product identifier

TIP TOP HARDENER E40

Art.-No.

525 1067, 525 1122, 525 1139, 525 1146

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 63
Place: D-85586 Poing
Telephone: +49 (0) 8121 / 707 - 0
Verantwortlich für das Sicherheitsdatenblatt: sds@gbk-ingelheim.de

1.4. Emergency telephone

number: INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a)
England and Wales: NHS Direct - 0845 4647; Scotland: NHS 24 - 08454 24 24
24

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Indications of danger: F - Highly flammable, Xn - Harmful

R phrases:

Highly flammable.

Irritating to eyes.

May cause sensitisation by inhalation.

Repeated exposure may cause skin dryness or cracking.

Vapours may cause drowsiness and dizziness.

GHS classification

Hazard categories:

Flammable liquid: Flam. Liq. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory/skin sensitization: Resp. Sens. 1

Specific target organ toxicity - single exposure: STOT SE 3

Hazard Statements:

Highly flammable liquid and vapour.

Causes serious eye irritation.

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

May cause drowsiness or dizziness.

2.2. Label elements

Hazardous components which must be listed on the label

Ethyl acetate

Thionophosphoric acid-tris-(p-isocyanatophenyl)

Signal word:

Danger

Pictograms:

GHS02-GHS07-GHS08



Hazard statements

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H336 May cause drowsiness or dizziness.

Precautionary statements

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

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.

P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Special labelling of certain mixtures

EUH066 Repeated exposure may cause skin dryness or cracking.

EUH204 Contains isocyanates. May produce an allergic reaction.

2.3. Other hazards

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Preparation with thiophosphate in ethyl acetate

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification	
Index No	GHS classification	
REACH No		
205-500-4	Ethyl acetate	< 75 %
141-78-6	F - Highly flammable, Xi - Irritant R11-36-66-67	
607-022-00-5	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066	
01-2119475103-46		
223-981-9	Thionophosphoric acid-tris-(p-isocyanatophenyl)	< 30 %
4151-51-3	R42	
	Resp. Sens. 1; H334	
01-2119948848-16		
203-628-5	Chlorobenzene	< 1 %
108-90-7	Xn - Harmful, N - Dangerous for the environment R10-20-51-53	
602-033-00-1	Flam. Liq. 3, Acute Tox. 4, Aquatic Chronic 2; H226 H332 H411	
01-2119432722-45		

Full text of R-, H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.

In the event of persistent symptoms receive medical treatment.

Take away from danger area and lay down affected person.

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

Wash off with soap and plenty of water.

Consult a doctor if skin irritation persists.

After contact with eyes

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 mouth.
Summon a doctor immediately.
Induce vomiting only upon the advice of a physician.

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

Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause drowsiness or dizziness.
Attention. Beware, danger of aspiration.
Repeated exposure may cause skin dryness or cracking.

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

Foam, carbon dioxide (CO₂), dry chemical, water-spray.

Unsuitable extinguishing media

Full water jet.

5.2. Special hazards arising from the substance or mixture

Fire may produce:

Chlorinated hydrocarbons, Hydrogen cyanide (HCN), Isocyanates (NCO), Carbon monoxide (CO), carbon dioxide (CO₂), phosphorus oxides (PO_x) and nitrogen oxides (NO_x).

5.3. Advice for firefighters

Use breathing apparatus with independent air supply.

Protective suit.

Additional information

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

Cool containers at risk with water spray jet.

Collect contaminated firefighting water separately, must not be discharged into the drains.

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.

Remove persons to safety.

Use personal protective clothing.

Keep away sources of ignition.

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.

Container should not be gas-tight closed.

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

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 containers dry and tightly closed to avoid moisture absorption and contamination.

In case of insufficient ventilation, especially in confined areas.

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

Avoid contact with skin, eyes and clothing.

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 rules.

Avoid temperatures above 50°C.

Advice on storage compatibility

Incompatible with:

Amines, Alcohols, 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

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
108-90-7	Chlorobenzene	1	4.7		TWA (8 h)	WEL
		3	14		STEL (15 min)	WEL
141-78-6	Ethyl acetate	200	-		TWA (8 h)	WEL
		400	-		STEL (15 min)	WEL

8.2. Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures

Avoid contact with eyes and skin.

Wash hands before breaks and immediately after handling the product.

When using do not eat, drink or smoke.

Treat subsequently with skin cream.

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

Splash protection:

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 (EN 368).

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment (gas filter type A) (EN 141).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	Yellowish	
Odour:	Ester-like	
Initial boiling point and boiling range:	approx. 77 °C	
Flash point:	approx. - 4 °C	DIN 51755
Lower explosion limits:	1,3 vol. %	
Upper explosion limits:	11,5 vol. %	
Vapour pressure: (at 20 °C)	approx. 97 hPa	
Density (at 20 °C):	approx. 1 g/cm ³	DIN 53217
Water solubility: (at 20 °C)	Reacts with water.	
Solubility in other solvents:	Acetone, dichloromethane: Miscible	
Ignition temperature:	approx. 460 °C	
Viscosity / dynamic: (at 20 °C)	approx. 3 mPa·s	DIN 53015
Solvent content:	< 75 %	

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

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

Reactions with strong acids and alkalies.

Reactions with alcohols.

Reactions with amines.

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.

Vapour/air mixtures are explosive at intensive warming.

Heating can release vapours which can be ignited.

10.5. Incompatible materials

Alcohols, Amines, Acids and bases.

10.6. Hazardous decomposition products

Isocyanates, Chlorinated hydrocarbons, Hydrogen cyanide gas., Carbon monoxide (CO), carbon dioxide (CO₂), phosphorus oxides (PO_x) and nitrogen oxides (NO_x).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

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

LD₅₀/oral/rat: > 2500 mg/kg [OECD 203]

LD₅₀/dermal: No data available.

LC₅₀/inhalation: No data available.

Irritation and corrosivity

Causes serious eye irritation.

Skin irritation (rabbit): Slightly irritating. [OECD 404]

Eyes irritation (rabbit): Slightly irritating. [OECD 405]

Sensitising effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (Thionophosphoric acid-tris-(p-isocyanatophenyl))

Sensitization skin (guinea pig): Negative [OECD 406]

STOT-single exposure

May cause drowsiness or dizziness. (Ethyl acetate)

Severe effects after repeated or prolonged exposure

Repeated exposure may cause skin dryness or cracking.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Mutagenicity: Not classified. [Ames-Test: Negative, OECD 471]

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.

Practical experience

Other observations

Repeated exposure may cause skin dryness or cracking.

Evaporation of solvents may cause irritation to eyes and mucous membranes.

Attention. Beware, danger of aspiration!

SECTION 12: Ecological information

12.1. Toxicity

LC50/Brachydanio rerio/96 h = No toxic effects in saturated solution. [OECD 203]

EC50/Daphnia magna/48 h = No toxic effects in saturated solution. [OECD 202]

IC50/Scenedesmus subspicatus/72 h = No toxic effects in saturated solution. [OECD 201]

EC50/Activated sludge > 10000 mg/l [OECD 209]

12.2. Persistence and degradability

Not readily biodegradable.

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

Low hazard to waters.

Further information

Do not flush into surface water or sanitary sewer system.

The transformation with water into CO₂ and polyureas is strongly stimulated by so-called liquid crushers (ammonia, soda or alcohols, combined with liquid soap).

In aqueous systems, formation of insoluble and chemically inert (inactive) polyureas.

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 dangerous substances
Classified as hazardous waste.

Contaminated packaging

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: UN1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3



Classification code: F1
Limited quantity: 5 L / 30 kg
Transport category: 2
Hazard No: 33
Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number: UN1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3



Classification code: F1
Limited quantity: 5 L / 30 kg

Marine transport (IMDG)

14.1. UN number: UN1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3



Marine pollutant: No
Limited quantity: 5 L / 30 kg
EmS: F-E, S-D

Air transport (ICAO)

14.1. UN number: UN1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3

14.4. Packing group:

II

Hazard label:

3



Limited quantity Passenger:

Y341 / 1 L

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. Transport in bulk according to Annex II of MARPOL73/78 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

1999/13/EC (VOC):

< 75%

National regulatory information

Employment restrictions:

Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.

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

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

LD = Lethal dose

LC = Lethal concentration

EC = Effect concentration

IC = Median immobilisation concentration or median inhibitory concentration

Relevant R-phrases (Number and full text)

10 Flammable.

11 Highly flammable.

20 Harmful by inhalation.

36 Irritating to eyes.

42 May cause sensitisation by inhalation.



-
- | | |
|----|---|
| 51 | Toxic to aquatic organisms. |
| 53 | May cause long-term adverse effects in the aquatic environment. |
| 66 | Repeated exposure may cause skin dryness or cracking. |
| 67 | Vapours may cause drowsiness and dizziness. |

Relevant H- and EUH-phrases (Number and full text)

- | | |
|--------|---|
| H225 | Highly flammable liquid and vapour. |
| H226 | Flammable liquid and vapour. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled . |
| H336 | May cause drowsiness or dizziness. |
| H411 | Toxic to aquatic life with long lasting effects. |
| EUH066 | Repeated exposure may cause skin dryness or cracking. |
| EUH204 | Contains isocyanates. 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.)