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

### 1.1. Product identifier

TIP TOP HARDENER E-40

**Art.-No.**

517 8009, 525 1067, 525 1068, 525 1069, 525 1122, 525 1123, 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 65 |
| Place: | D-85586 Poing |
| Telephone: | +49 (0) 8121 / 707 - 100 |
| Responsible Department: | Responsible for the safety data sheet: sds@gbk-ingelheim.de |

### 1.4. Emergency telephone number:

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
STOT SE 3; H336

Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

**Regulation (EC) No 1272/2008**

**Hazard components for labelling**

Ethyl acetate

**Signal word:** Danger

**Pictograms:**

**Hazard statements**

| | |
|---|---|
| H225 | Highly flammable liquid and vapour. |
| H336 | May cause drowsiness or dizziness. |

**Precautionary statements**

| | |
|---|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground and bond container and receiving equipment. |
| P243 | Take action to prevent static discharges. |
| P280 | Wear protective gloves/protective clothing and eye protection/face protection. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. |

**Special labelling**

EUH066 Repeated exposure may cause skin dryness or cracking.
EUH204 Contains isocyanates. May produce an allergic reaction.

**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**

Preparation with thiophosphate in ethyl acetate

**Hazardous components**

| CAS No | Chemical name | | | Quantity |
|---|---|---|---|---|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 141-78-6 | Ethyl acetate | | | < 75 % |
| | 205-500-4 | 607-022-00-5 | 01-2119475103-46 | |
| | Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066 | | | |
| 4151-51-3 | Thionophosphoric acid-tris-(p-isocyanatophenyl) | | | < 30 % |
| | 223-981-9 | | 01-2119948848-16 | |
| | Acute Tox. 4; H302 | | | |

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 | | |
| 4151-51-3 | 223-981-9 | Thionophosphoric acid-tris-(p-isocyanatophenyl) | < 30 % |
| | oral: LD50 = 675 mg/kg | | |

## 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**

May cause drowsiness or dizziness.
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 (POx) and nitrogen oxides (NOx).

**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**

**General advice**

Ensure adequate ventilation.
Remove persons to safety.
Keep away sources of ignition.

**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.

**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.

No not container for disposal.
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).
Informations for disposal look up chapter 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.

**Advice on general occupational hygiene**

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 clothes before re-use.

### 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.

**Hints on joint storage**

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

**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) | |

### 8.2. Exposure controls

**Appropriate engineering controls**

Ensure adequate ventilation, especially in confined areas.

**Individual protection measures, such as personal protective equipment**

**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 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: | Ester-like |

| | | Test method |
|---|---|---|
| **Changes in the physical state** | | |
| Melting point/freezing point: | n. d. | |
| Boiling point or initial boiling point and boiling range: | approx. 77 °C | |
| Sublimation point: | n.a. | |
| Softening point: | n. d. | |
| Flash point: | approx. - 4 °C | DIN 51755 |
| **Flammability** | | |
| Solid/liquid: | n.a. | |
| **Explosive properties** | | |
| The product is considered non-explosive; nethertheless explosive vapour/air mixture can be generated. | | |
| Lower explosion limits: | 2,2 vol. % | |
| Upper explosion limits: | 11,5 vol. % | |
| Auto-ignition temperature: | approx. 460 °C | |
| **Self-ignition temperature** | | |
| Solid: | n.a. | |
| Gas: | n.a. | |
| Decomposition temperature: | n. d. | |
| pH-Value: | n. d. | |
| Viscosity / dynamic: (at 20 °C) | approx. 3 mPa·s | DIN 53019 |
| Viscosity / kinematic: | n. d. | |
| Flow time: | approx. 10 s | DIN 53211 |
| Water solubility: (at 20 °C) | Reacts with water | |

**Solubility in other solvents**

Acetone, dichloromethane: Miscible

| | | |
|---|---|---|
| Partition coefficient n-octanol/water: | n. d. | |
| Vapour pressure: (at 20 °C) | approx. 97 hPa | |
| Density (at 20 °C): | approx. 1 g/cm³ | DIN 53217 |
| Bulk density: | n.a. | |
| Relative vapour density: | n. d. | |

**9.2. Other information**

**Information with regard to physical hazard classes**

| | |
|---|---|
| Sustained combustibility: | Sustained combustibility |

Oxidizing properties

Not oxidising.

**Other safety characteristics**

| | |
|---|---|
| Solvent separation test: | n. d. |
| Solvent content: | < 75 % |
| Evaporation rate: | n. d. |

**Further 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**

No hazardous decomposition products known.
Fire may produce:
Isocyanates,Chlorinated hydrocarbons, Hydrogen cyanide gas., Carbon monoxide (CO), carbon dioxide (CO2), phosphorus oxides (POx) and nitrogen oxides (NOx)

## 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.
LD50/oral/rat: > 2000 mg/kg [OECD 423]
LD50/dermal: No data available.
LC50/inhalation: No data available.

**ATEmix calculated**

ATE (oral) 1852 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

**Irritation and corrosivity**

Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.
Repeated exposure may cause skin dryness or cracking.
Skin irritation (rabbit): Mildly irritating. [OECD 404]; Not classified.
Eyes irritation (rabbit): Mildly irritating. [OECD 405]; Not classified.

**Sensitising effects**

Based on available data, the classification criteria are not met.
Contains isocyanates. May produce an allergic reaction.
Sensitization skin (guinea pig): Negative [OECD 406]

**Carcinogenic/mutagenic/toxic effects for reproduction**

Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.
Mutagenicity: Not classified. [Ames-Test: Negative, OECD 471]; [Micronucleus test: Negative, OECD 487]

**STOT-single exposure**

May cause drowsiness or dizziness. (Ethyl acetate)

**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

**Other information**

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

## 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

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

**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**

Slightly water hazardous.

**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**

**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 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 or ID number:** | UN 1133 |
| **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 |
| Excepted quantity: | E2 |
| Transport category: | 2 |
| Hazard No: | 33 |
| Tunnel restriction code: | D/E |

**Inland waterways transport (ADN)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1133 |
| **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 |
| Excepted quantity: | E2 |

**Marine transport (IMDG)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1133 |
| **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 |
| Excepted quantity: | E2 |
| EmS: | F-E, S-D |

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

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1133 |
| **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: | 1 L |
| Passenger LQ: | 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 75

Directive 2004/42/EC on VOC in paints and varnishes: < 75 %

| | |
|---|---|
| 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): 2,8,9,15.

**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

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 | Classification procedure |
|---|---|
| Flam. Liq. 2; H225 | On basis of test data |
| STOT SE 3; H336 | Calculation method |

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

| | |
|---|---|
| H225 | Highly flammable liquid and vapour. |
| H302 | Harmful if swallowed. |
| H319 | Causes serious eye irritation. |
| H336 | May cause drowsiness or dizziness. |
| 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 relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*