# Safety Data Sheet

according to WHMIS

## TIP TOP HARDENER E-40



## 1. Identification

**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

**Relevant identified uses of the substance or mixture and uses advised against**

**Use of the substance/mixture**

Hardener

**Details of the supplier of the safety data sheet**

| | |
|---|---|
| Company name: | REMA TIP TOP / North America Inc. |
| Street: | 1500 Industrial Blvd |
| Place: | Madison, GA 30650, USA |
| Telephone: | +1 800 225 7362, |
| Internet: | www.rematiptop.com |
| Responsible Department: | Responsible for the safety data sheet: sds@gbk-ingelheim.de |
| **Emergency telephone number:** | (USA domestic) 1 800 535 5053 or international (001) 352 323 3500<br>Infotrac/GBK GmbH-ID: 93591 |

## 2. Hazard identification

**Classification of the substance or mixture**

**WHMIS 2015**

Flammable liquids: Flam. Liq. 2
Specific target organ toxicity - single exposure: STOT SE 3 (narcotic effects)

**Label elements**

**WHMIS 2015**

**Signal word:** Danger

**Pictograms:**

**Hazard statements**

Highly flammable liquid and vapour.
May cause drowsiness or dizziness.

**Precautionary statements**

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

**Other hazards**

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.
Vapours may form explosive mixture with air.

## 3. Composition/information on ingredients

**Mixtures**

**Chemical characterization**

Preparation with thiophosphate in ethyl acetate

**Hazardous components**

| CAS No | Chemical name | Quantity |
|---|---|---|
| 141-78-6 | Ethyl acetate | < 75 % |
| 4151-51-3 | Thionophosphoric acid-tris-(p-isocyanatophenyl) | < 30 % |

## 4. First-aid measures

**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.

**Most important symptoms and effects, whether acute or delayed**

May cause drowsiness or dizziness.
Repeated exposure may cause skin dryness or cracking.

WHMIS: This material is considered hazardous by WHMIS 2015 (Workplace Hazardous Materials Information System).

**Indication of immediate medical attention and special treatment needed**

Treat symptoms.

## 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**

Foam, carbon dioxide ($CO_2$), dry chemical, water-spray.

**Unsuitable extinguishing media**

Full water jet.

**Specific hazards arising from the hazardous product**

Fire may produce:
Chlorinated hydrocarbons, Hydrogen cyanide (HCN), Isocyanates (NCO)., Carbon monoxide (CO), carbon dioxide ($CO_2$), phosphorus oxides (POx) and nitrogen oxides (NOx).

**Special protective equipment and precautions for fire-fighters**

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.

## 6. Accidental release measures

**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.

**Environmental precautions**

Do not discharge into the drains/surface waters/groundwater.

**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.
Container should not be gas-tight closed.
Container can be pressurized by carbon dioxide due to reaction with humid air and/or water.

**Reference to other sections**

Observe protective instructions (see Sections 7 and 8).
Information for disposal look up chapter 13.

## 7. Handling and storage

**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.

**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.

## 8. Exposure controls/Personal protection

**Control parameters**

**Exposure limits (ACGIH)**

| CAS No | Chemical name | ppm | mg/m³ | F/ml | Category | Origin |
|---|---|---|---|---|---|---|
| 141-78-6 | Ethyl acetate | 400 | 1440 | | TWA (8 h) | ACGIH-2025 |

**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.

**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.

**Respiratory protection**

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

## 9. Physical and chemical properties

**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; nevertheless explosive vapour/air mixture can be generated.

| | | |
|---|---|---|
| Lower explosive limits: | 2,2 vol. % | |
| Upper explosive 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. | |

**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

## 10. Stability and reactivity

**Reactivity**

No decomposition if stored and applied as directed.

**Chemical stability**

Stable under normal conditions.

**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.

**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.

**Incompatible materials**

Alcohols, Amines, Acids and bases

**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)

## 11. Toxicological information

**Information on toxicological effects**

**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.
Skin irritation (rabbit): Mildly irritating. [OECD 404]; Not classified.
Eye irritation (rabbit): Mildly irritating. [OECD 405]; Not classified.

**Sensitizing effects**

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

**Information on likely routes of exposure**

Skin and eye contact, inhalation and ingestion.

**Additional information on tests**

Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.

**Information on other hazards**

**Endocrine disrupting properties**

No data available

**Other information**

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

## 12. Ecological information

**Ecotoxicity**

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]

**Persistence and degradability**

Not readily biodegradable.

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**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.

**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.

## 13. Disposal considerations

**Waste treatment methods**

**Disposal recommendations**

Where possible recycling is preferred to disposal.
Can be incinerated, when in compliance with local regulations.

**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.

## 14. Transport information

**Canadian TDG**

| | |
|---|---|
| **UN number:** | UN 1133 |
| **Proper shipping name:** | Adhesives |
| **Hazard classes:** | 3 |
| **Packing group:** | II |
| Hazard label: | 3 |
| Limited quantity: | 5L |

**Marine transport (IMDG)**

| | |
|---|---|
| **UN number or ID number:** | UN 1133 |
| **United Nations proper shipping name:** | Adhesives |
| **Transport hazard class(es):** | 3 |
| **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)**

| | |
|---|---|
| **UN number or ID number:** | UN 1133 |
| **United Nations proper shipping name:** | Adhesives |
| **Transport hazard class(es):** | 3 |
| **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 |

**Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

## 15. Regulatory information

**Canadian regulations**

**DSL/NDSL inventory status**

All components are listed on the DSL Inventory.

**National Pollutant Release Inventory (NPRI)**

Ethyl acetate (141-78-6)

## 16. Other information

**Changes**

This data sheet contains changes from the previous version in section(s): 2,8,9.

**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

**Further Information**

Data of sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release 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.)*