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

Recommended use of the chemical and restrictions on use

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 phone number:	(USA domestic) 1 800 535 5053 or international (001) 352 323 3500 Infotrac/GBK GmbH-ID: 93591

2. Hazard(s) identification

Classification of the chemical

29 CFR Part 1910.1200

Flammable liquids: Flam. Liq. 2

Specific target organ toxicity single exposure: STOT SE 3 (narcotic effects)

Label elements

29 CFR Part 1910.1200

Signal word: Danger

Pictograms:

Hazard statements

Highly flammable liquid and vapor

May cause drowsiness or dizziness

Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Take precautionary measures against static discharge.

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

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

Hazards not otherwise classified

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	Components	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, both acute and delayed

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

OSHA Hazard Communication: This material is considered hazardous by the OSHA Hazard Communication Standard 29CFR 1910.1200.

Indication of any 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 chemical

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

CAS No	Substance	ppm	mg/m³	f/cc	Category	Origin
141-78-6	Ethyl acetate	400	1400		TWA (8 h)	PEL
		400	1400		TWA (8 h)	REL
		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
Color:	Yellowish
Odor:	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 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.	
Vapor 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

Stability: Stable

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous reactions: Will not occur

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 (CO_2), phosphorus oxides (POx) and nitrogen oxides (NOx)

11. Toxicological information

Route(s) of Entry

Skin and eye contact, inhalation and ingestion.

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]

Specific target organ toxicity (STOT) - single exposure

May cause drowsiness or dizziness (Ethyl acetate)

Specific target organ toxicity (STOT) - repeated exposure

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

Carcinogenicity (OSHA):	No ingredient of this mixture is listed.
Carcinogenicity (IARC):	No ingredient of this mixture is listed.
Carcinogenicity (NTP):	No ingredient of this mixture is listed.

Aspiration hazard

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

Additional information on tests

This product is classified in accordance with the GHS regulations.

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

U.S. DOT 49 CFR 172.101

UN number or ID number:	UN 1133
Proper shipping name:	Adhesives
Transport hazard class(es):	3
Packing group:	II
Hazard label:	3

Marine transport (IMDG)

UN number or ID number:	UN 1133
UN 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
UN 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

Special precautions for user

Handle in accordance with good industrial hygiene and safety practice.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

The transport takes place only in approved and appropriate packaging.

15. Regulatory information

U.S. Regulations

National Inventory TSCA

All of the components are listed on the TSCA inventory.

National regulatory information

SARA Section 304 CERCLA:

Ethyl acetate (141-78-6): Reportable quantity = 5,000 (2270) lbs. (kg)

SARA Section 311/312 Hazards:

Ethyl acetate (141-78-6): Fire hazard, Immediate (acute) health hazard

Thionophosphoric acid-tris-(p-isocyanatophenyl) (4151-51-3): Immediate (acute) health hazard

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other information

Hazardous Materials Identification System (HMIS)

Health:	1
Flammability:	2
Physical Hazard:	0

NFPA Hazard Ratings

Health:	1
Flammability:	2
Reactivity:	1
Unique Hazard:	

Changes

Revision date:	02.03.2026
Revision No:	2,8

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

Other data

The information in this document is based on the present state of knowledge and is applicable to the product

with regard to appropriate safety precautions.
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.)