



## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 1 of 11

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

##### 1.1. Product identifier

TIP TOP HARDENER ER-42

###### Art.-No.

525 1116, 5251118, 5251151, 525 1156

##### 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)

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

###### Regulation (EC) No. 1272/2008

Hazard categories:

Flammable liquid: Flam. Liq. 2

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory or skin sensitisation: Resp. Sens. 1

Respiratory or skin sensitisation: Skin Sens. 1

Carcinogenicity: Carc. 2

Specific target organ toxicity - single exposure: STOT SE 3

Specific target organ toxicity - single exposure: STOT SE 3

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

Highly flammable liquid and vapour.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye irritation.

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

May cause an allergic skin reaction.

Suspected of causing cancer.

May cause respiratory irritation.

May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

##### 2.2. Label elements

###### Regulation (EC) No. 1272/2008

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 2 of 11

#### Hazard components for labelling

Ethyl acetate  
Diphenylmethanediisocyanate, isomers and homologues  
Diphenylmethane-4,4'-diisocyanate  
Aromatic polyisocyanate  
Tosyl isocyanate

**Signal word:** Danger

**Pictograms:**



#### Hazard statements

H225 Highly flammable liquid and vapour.  
H332 Harmful if inhaled.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H317 May cause an allergic skin reaction.  
H351 Suspected of causing cancer.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness.  
H373 May cause damage to organs through prolonged or repeated exposure.

#### Precautionary statements

P201 Obtain special instructions before use.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P260 Do not breathe vapour.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
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.  
P308+P313 IF exposed or concerned: Get medical advice/attention.

#### Special labelling of certain mixtures

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

Aromatic polyisocyanate

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 3 of 11

#### Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
141-78-6	Ethyl acetate			< 85 %
	205-500-4	607-022-00-5	01-2119475103-46	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066			
9016-87-9	Diphenylmethanediisocyanate, isomers and homologues			< 20 %
	618-498-9			
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			
101-68-8	Diphenylmethane-4,4'-diisocyanate			< 10 %
	202-966-0	615-005-00-9	01-2119457014-47	
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			
53317-61-6	Aromatic polyisocyanate			< 10 %
	500-120-8			
	Acute Tox. 4, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1; H332 H319 H334 H317 EUH066			
4083-64-1	Tosyl isocyanate			< 0,5 %
	223-810-8	615-012-00-7	01-2119980050-47	
	Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, STOT SE 3; H315 H319 H334 H335 EUH014			

Full text of H and EUH statements: see section 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

- Remove contaminated soaked clothing immediately.
- If you feel unwell, seek medical advice.
- Take away from danger area and lay down affected person.
- In case of the person being unconscious put him/her in a stable side position.

#### After inhalation

- Move to fresh air in case of accidental inhalation of vapours or decomposition products.
- Refer for medical treatment.
- If patient is not breathing, apply artificial respiration.

#### After contact with skin

- Wash off with soap and plenty of water.
- Consult a doctor if skin irritation persists.
- Do not use solvents or thinners.

#### After contact with eyes

- Remove contact lens.
- 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 out mouth and give plenty of water to drink.
- Never give anything by mouth to an unconscious person.
- Summon a doctor immediately.
- Induce vomiting only upon the advice of a physician.



## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 4 of 11

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

- Suspected of causing cancer.
- May cause damage to organs through prolonged or repeated exposure.
- Causes serious eye irritation.
- Causes skin irritation.
- May cause respiratory irritation.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- May cause drowsiness or dizziness.

#### **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**

- Alcohol-resistant foam, dry chemical, carbon dioxide (CO<sub>2</sub>), water-spray.

##### **Unsuitable extinguishing media**

- Full water jet.

#### **5.2. Special hazards arising from the substance or mixture**

- Fire may produce:
  - carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>)
  - Hydrogen cyanide (HCN)
  - Isocyanates (NCO).

#### **5.3. Advice for firefighters**

- Wear self-contained breathing apparatus and protective suit.

#### **Additional information**

- Cool containers at risk with water spray jet.
- The vapour/air mixture is explosive, even in empty, uncleaned receptacles.
- Vapours are heavier than air and spread along ground.
- 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.
- Use only explosion-proof equipment.
- Ensure adequate ventilation.
- Use personal protective clothing.
- Keep away sources of ignition.

#### **6.2. Environmental precautions**

- Do not discharge into the drains/surface waters/ground water.
- Inform competent authority about release into the sewage, ground or into waters.

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

#### **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**

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 5 of 11

#### 7.1. Precautions for safe handling

##### Advice on safe handling

- Keep container tightly closed.
- Keep a good ventilation and air-exhaust at the place of work.
- Vapours are heavier than air and spread along ground.
- Avoid contact with the skin and the eyes.
- When using do not eat, drink or smoke.
- Do not empty container under pressure. No pressure tank!
- Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

##### 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 protection rules.
- Protect from heat and direct solar radiation.

##### Advice on storage compatibility

- Incompatible with:
  - Oxidizing agents
  - Acids and bases.
  - Water, amines, alcohols

##### 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 <sup>3</sup>	fibres/ml	Category	Origin
141-78-6	Ethyl acetate	200	-		TWA (8 h)	WEL
		400	-		STEL (15 min)	WEL
-	Isocyanates, all (as -NCO) Except methyl isocyanate	-	0.02		TWA (8 h)	WEL
		-	0.07		STEL (15 min)	WEL

#### 8.2. Exposure controls

##### Appropriate engineering controls

- Ensure adequate ventilation, especially in confined areas.

##### Protective and hygiene measures

- 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.

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 6 of 11

Remove and wash contaminated clothing before re-use.

#### 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 nitrile, Minimum coat thickness 0.4 mm, Permeation resistance (wear duration) > 10 minutes.

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 14387).

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Yellowish
Odour:	Characteristic

#### Test method

#### Changes in the physical state

Initial boiling point and boiling range:	77 °C
Flash point:	- 4 °C
Lower explosion limits:	2,1 vol. %
Upper explosion limits:	11,5 vol. %
Ignition temperature:	n.d.
Vapour pressure: (at 20 °C)	97 hPa
Density (at 20 °C):	0,97 g/cm <sup>3</sup>
Water solubility: (at 20 °C)	Immiscible

### 9.2. Other information

Solid content:	26 %
----------------	------

## 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

Reactions with acids, alkalies and oxidizing agents

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 7 of 11

Reacts with: Water, amines, alcohols

#### **10.4. Conditions to avoid**

To avoid thermal decomposition, do not overheat.  
Heating can release vapours which can be ignited.  
Vapour/air-mixtures are explosive at intense warming.

#### **10.5. Incompatible materials**

Strong oxidizing agents  
Strong acids and strong bases  
Water, amines, alcohols

#### **10.6. Hazardous decomposition products**

Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>).  
Hydrogen cyanide gas  
Isocyanates

## SECTION 11: Toxicological information

### **11.1. Information on toxicological effects**

#### **Acute toxicity**

Harmful if inhaled.  
No toxicological data available.

#### **Irritation and corrosivity**

Causes skin irritation.  
Causes serious eye irritation.

#### **Sensitising effects**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.

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

Suspected of causing cancer.  
Germ cell mutagenicity: Based on available data, the classification criteria are not met.  
Reproductive toxicity: Based on available data, the classification criteria are not met.

#### **STOT-single exposure**

May cause respiratory irritation. ( (Diphenylmethane-4,4'-diisocyanate))  
May cause drowsiness or dizziness. ( (Ethyl acetate))

#### **STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure. ( (Diphenylmethanediisocyanate, isomers and homologues))

#### **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**

Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.  
Inhalation of high concentrations may cause injuries to liver, kidneys and central nervous system.  
A longer or repeated contact may lead to irritation of eyes and mucous membranes.  
Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.  
With hypersensitive people, reactions as cough or difficulty of breathing may appear even with tiny concentrations of isocyanates; therefore keep room aerated and ventilated.

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 8 of 11

#### SECTION 12: Ecological information

##### 12.1. Toxicity

Ecological data are not available.

##### 12.2. Persistence and degradability

No data available.

##### 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.

#### SECTION 13: Disposal considerations

##### 13.1. Waste treatment methods

###### **Advice on disposal**

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

###### **Waste disposal number of waste from residues/unused products**

080111 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU and removal of paint and varnish; waste paint and varnish containing organic solvents or other hazardous substances  
Classified as hazardous waste.

###### **Contaminated packaging**

Empty containers should be taken for local recycling, recovery or waste disposal.  
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)**

<b><u>14.1. UN number:</u></b>	UN 1133
<b><u>14.2. UN proper shipping name:</u></b>	Adhesives
<b><u>14.3. Transport hazard class(es):</u></b>	3
<b><u>14.4. Packing group:</u></b>	II
Hazard label:	3



Classification code:	F1
Limited quantity:	5 L / 30 kg
Excepted quantity:	E0

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 9 of 11

Transport category: 2  
Hazard No: 33  
Tunnel restriction code: D/E

#### Inland waterways transport (ADN)

**14.1. UN 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:** 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:** 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: Y341 / 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



## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### TIP TOP HARDENER ER-42

Revision date: 07.03.2017

Product code: 00156-0414

Page 10 of 11

#### **14.6. Special precautions for user**

Handle in accordance with good industrial hygiene and safety practices.

#### **14.7. Transport in bulk according to Annex II of Marpol 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**

Restrictions on use (REACH, annex XVII):

Entry 56: Diphenylmethane-4,4'-diisocyanate

2004/42/EC (VOC): 710,76 g/l // < 75%

##### **National regulatory information**

Employment restrictions: Observe restrictions to employment for juvenils 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 contaminating class (D): 1 - slightly water contaminating

#### **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  
vPvB = Very Persistent and very Bio-accumulative  
LD = Lethal dose  
LC = Lethal concentration  
EC = Effect concentration  
IC = Median immobilisation concentration or median inhibitory concentration

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

H225 Highly flammable liquid and vapour.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**TIP TOP HARDENER ER-42**

Revision date: 07.03.2017

Product code: 00156-0414

Page 11 of 11

H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
EUH014	Reacts violently with water.
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.)*