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

1.1. Product identifier

TIP TOP HARDENER UT-R20

Art.-No.

525 1005, 525 1036, 525 1043, 525 1046, 525 1047, 525 1048

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Cross-linking agent

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: Xn - Harmful
R phrases:
Irritating to eyes, respiratory system and skin.
Limited evidence of a carcinogenic effect.
May cause sensitisation by inhalation and skin contact.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.

GHS classification

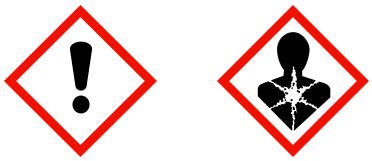
Hazard categories:
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Respiratory/skin sensitization: Resp. Sens. 1
Respiratory/skin sensitization: Skin Sens. 1
Carcinogenicity: Carc. 2
Specific target organ toxicity - single exposure: STOT SE 3
Specific target organ toxicity - repeated exposure: STOT RE 2
Hazard Statements:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

Hazardous components which must be listed on the label

Dichloromethane
Diphenylmethanediisocyanate, isomers and homologues
Dibutyltin dilaurate

Signal word:	Danger
Pictograms:	GHS07-GHS08



Hazard statements

H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled .
H335	May cause respiratory irritation.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe vapour.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P405	Store locked up.

Special labelling of certain mixtures

EUH204	Contains isocyanates. May produce an allergic reaction. Restricted to professional users.

2.3. Other hazards

Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Preparation with isocyanates and dichloromethane

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification	
Index No	GHS classification	
REACH No		
200-838-9	Dichloromethane	60 - 100 %
75-09-2	Carc. Cat. 3 R40	
602-004-00-3	Carc. 2; H351	
01-2119487001-48		
	Diphenylmethanediisocyanate, isomers and homologues	13 - 30 %
9016-87-9	Carc. Cat. 3, Xn - Harmful, Xi - Irritant R20-36/37/38-40-42/43-48/20	
	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	
201-039-8	Di-n-butyltin dilaurate	0,1 - < 1 %
77-58-7	Muta. Cat. 3, Repr. Cat. 2, T - Toxic, C - Corrosive, Xn - Harmful, N - Dangerous for the environment R60-61-22-34-48/25-50-53-68	
	Muta. 2, Repr. 1B, Acute Tox. 4, Skin Corr. 1C, Skin Sens. 1, STOT SE 1, STOT RE 1, Aquatic Acute 1 (M-Factor = 1), Aquatic Chronic 1 (M-Factor = 1); H341 H360FD H302 H314 H317 H370 H372 H400 H410	
01-2119496068-27		

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.
Refer for medical treatment.

After contact with skin
Wash off immediately with soap and plenty of water.
Consult a physician.

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
Induce vomiting only upon the advice of a physician.
Attention. Beware, danger of aspiration.
Do not induce vomiting.
Summon a doctor immediately.

4.2. Most important symptoms and effects, both acute and delayed
Suspected of causing cancer.
Causes serious eye irritation.
Causes skin irritation.
May cause respiratory irritation.
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause damage to organs through prolonged or repeated exposure.

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 (CO_2), dry chemical, water-spray.

Unsuitable extinguishing media
Full water jet.

5.2. Special hazards arising from the substance or mixture
Fire may produce:
Chlorine and traces of phosgene.
Hydrogen chloride gas.
Carbon monoxide (CO), carbon dioxide (CO_2) and nitrogen oxides (NO_x).
Hydrogen cyanide (HCN)

5.3. Advice for firefighters
Wear self-contained breathing apparatus and protective suit.

Additional information
Cool containers at risk with water spray jet.
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.
Vapours are heavier than air and spread along ground.
Ensure adequate ventilation.
Remove persons to safety.
Use personal protective clothing.

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 container tightly closed.
Vapours are heavier than air and spread along ground.
Do not breathe vapours.
Local exhaust.
Use only in thoroughly ventilated areas.

Advice on protection against fire and explosion
Keep away from heat and sources of ignition.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep containers tightly closed in a cool, well-ventilated place.
Avoid temperatures above 40°C.

Advice on storage compatibility
Exothermic reaction with:
Alcohol, Amines, Alkaline metals., Acids and bases.

Further information on storage conditions
Keep away from food, drink and animal feeding stuffs.
Container can be pressurized by carbon dioxide due to reaction with humid air and/or water.

7.3. Specific end use(s)
Cross-linking agent

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
75-09-2	Dichloromethane	100	350		TWA (8 h)	WEL
		300	1060		STEL (15 min)	WEL

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
75-09-2	Dichloromethane	carbon monoxide	30 ppm	end-tidal breath	Post shift

8.2. Exposure controls

Appropriate engineering controls
Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures
Do not inhale vapours.
Avoid contact with eyes and skin.
Wash hands before breaks and immediately after handling the product.

When using do not eat, drink or smoke.
Take off immediately all contaminated clothing.

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 viton, minimum coat thickness 0,7 mm, permeation resistance (wear duration) approx. 120 minutes, i.e. protective glove <Vitoject 890> 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 AX) (EN 141).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	Brownish	
Odour:	Sweetish, similar to chloroform	
Initial boiling point and boiling range:	n.d.	
Flash point:	> 62 °C	Closed cup
Lower explosion limits:	n.d.	
Upper explosion limits:	n.d.	
Vapour pressure: (at 20 °C)	n.d.	
Vapour density:	8,5	
Density (at 20 °C):	n.d.	
Water solubility:	Reacts with water.	
Solubility in other solvents:	Acetone/ethyl acetate: Miscible	
Ignition temperature:	n.d.	

9.2. Other information

No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity
No decomposition if stored normally.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Reactions with strong acids and alkalies.
Reactions with alkali metals.

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

10.5. Incompatible materials
Water, Alkaline metals, Amines, Alcohols, Strong acids and strong bases.

10.6. Hazardous decomposition products
Hydrogen cyanide gas.
Chlorine and traces of phosgene.

Hydrogen chloride gas
Carbon monoxide (CO), carbon dioxide (CO_2) and nitrogen oxides (NOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

Irritation and corrosivity
Causes serious eye irritation.
Causes skin irritation.

Sensitising effects
May cause allergy or asthma symptoms or breathing difficulties if inhaled . (Diphenylmethanediisocyanate, isomers and homologues)
May cause an allergic skin reaction. (Diphenylmethanediisocyanate, isomers and homologues), (Di-n-butyltin dilaurate)

STOT-single exposure
May cause respiratory irritation. (Diphenylmethanediisocyanate, isomers and homologues)

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

Carcinogenic/mutagenic/toxic effects for reproduction
Suspected of causing cancer. (Dichloromethane), (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 concentration may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Hazard of lung oedema.
With hypersensitive people, reactions as cough or difficulty of breathing may appear even with tiny concentrations of isocyanates; therefore keep room aerated and ventilated.

SECTION 12: Ecological information

12.1. Toxicity

Dichloromethane
LC50/Pimephales promelas/ 96 h = 310 mg/l
EC50/Daphnia magna/48 h > 100 mg/l

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

Hazardous water pollutant.

Further information
Do not flush into surface water or sanitary sewer system.

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

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)

14.1. UN number:	UN 1593
14.2. UN proper shipping name:	DICHLOROMETHANE, Solution
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1

Classification code:	T1
Limited quantity:	5 L / 30 kg
Transport category:	2
Hazard No:	60
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number:	UN 1593
14.2. UN proper shipping name:	DICHLOROMETHANE, Solution
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1

Classification code:	T1
Limited quantity:	5 L / 30 kg

Marine transport (IMDG)

14.1. UN number:	UN 1593
14.2. UN proper shipping name:	DICHLOROMETHANE, SOLUTION
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1

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

Air transport (ICAO)

14.1. UN number:	UN 1593
14.2. UN proper shipping name:	DICHLOROMETHANE, SOLUTION
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1

Limited quantity Passenger:	Y642 / 2 L
IATA-packing instructions - Passenger:	655
IATA-max. quantity - Passenger:	60 L
IATA-packing instructions - Cargo:	663
IATA-max. quantity - Cargo:	220 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

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 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.

Additional information

Chemical prohibition regulation consider.

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)

20	Harmful by inhalation.
22	Harmful if swallowed.
34	Causes burns.
36/37/38	Irritating to eyes, respiratory system and skin.
40	Limited evidence of a carcinogenic effect.
42/43	May cause sensitisation by inhalation and skin contact.
48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed.
50	Very toxic to aquatic organisms.
53	May cause long-term adverse effects in the aquatic environment.
60	May impair fertility.
61	May cause harm to the unborn child.
68	Possible risks of irreversible effects.

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

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
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.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H360FD	May damage fertility. May damage the unborn child.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
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.)