

Safety Data Sheet

According to the Model WHS Regulations and the ADG code

TIP TOP HARDENER ER-42

Print date: 28.08.2015

Product code: 00156-0414AUS

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Signal word: Danger

Pictograms:



flame



exclamation mark



health hazard

Hazard statements

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.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
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.
P235	Keep cool.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe vapour.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory 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.
P364	And wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to approved disposal company or local collection.

Special labelling of certain mixtures

AUH066	Repeated exposure may cause skin dryness or cracking.
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2.3. Other hazards

Vapours may form explosive mixture with air.
Contains: Isocyanates. May produce an allergic reaction.

SECTION 3: Composition/information on ingredients

3.2. Mixtures



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Chemical characterization

Aromatic polyisocyanate

Hazardous components

CAS No	Chemical name	Quantity
EC No	Classification according to NOHSC criteria	
Index No	Classification according to WHS criteria	
REACH No		
141-78-6	Ethyl acetate	> 60 %
205-500-4	F - Highly flammable, Xi - Irritant R11-36-66-67	
607-022-00-5	Flam. Liq. 2, Eye Irrit. 2A, STOT SE 3; H225 H319 H336 AUH066	
01-2119475103-46		
9016-87-9	Diphenylmethanediisocyanate, isomers and homologues	10 - < 30 %
	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. 2A, 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	Carc. Cat. 3, Xn - Harmful, Xi - Irritant R40-20-48/20-36/37/38-42/43	
615-005-00-9	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2A, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373	
01-2119457014-47		
53317-61-6	Aromatic polyisocyanate	< 10 %
	Xn - Harmful, Xi - Irritant R20-36-42/43-66	
	Acute Tox. 4, Eye Irrit. 2A, Resp. Sens. 1, Skin Sens. 1; H332 H319 H334 H317 AUH066	

Full text of R, H and AUH phrases: 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.



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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.

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 damage.
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.
Harmful if inhaled.

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 (CO₂), 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 (CO₂) and nitrogen oxides (NO_x).
Hydrogen cyanide (HCN)
Isocyanates (NCO).

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.
HAZCHEM: •3YE

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).



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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

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 ³	fibres/ml	Category	Origin
141-78-6	Ethyl acetate	200	-	-	TWA (8 h)	WEL
		400	-	-	STEL (15 min)	WEL

8.2. Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.



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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.
- Remove and wash contaminated clothing before re-use.

Eye/face protection

- Tightly fitting goggles.
- Eye wash bottle with pure water.

Hand protection

- Protective gloves resistant to chemicals made off butyl, minimum coat thickness 0.7 mm, permeation resistance (wear duration) approx. 120 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).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Yellowish
Odour:	characteristic

Test method

pH-Value: No information available.

Changes in the physical state

Melting point:	No information available.
Initial boiling point and boiling range:	77 °C
Flash point:	- 4 °C
Evaporation rate:	No information available.
Flammability	No information available.
Lower explosion limits:	2.1 vol. %
Upper explosion limits:	11.5 vol. %
Vapour pressure: (at 20 °C)	90.7 hPa
Vapour density:	No information available.
Density (at 20 °C):	0.968 g/cm ³
Water solubility: (at 20 °C)	Immiscible
Solubility in other solvents	No information available.
Partition coefficient:	No information available.
Ignition temperature:	180 °C
Auto-ignition temperature	No information available.



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Explosive properties	No information available.
Decomposition temperature:	No information available.
Viscosity / dynamic:	No information available.
Viscosity / kinematic:	No information available.
Oxidizing properties	No information available.

9.2. Other 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

Reactions with acids, alkalies and oxidizing agents
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 (CO₂) and nitrogen oxides (NO_x).
Hydrogen cyanide gas
Isocyanates

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Harmful if inhaled.
No toxicological data available.

ATEmix calculated

ATE (inhalative aerosol) 2.153 mg/l

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CAS No	Chemical name	Exposure routes	Method	Dose	Species	Source
141-78-6	Ethyl acetate	oral	LD50	5620 mg/kg	Rat	
		dermal	LD50	> 18000 mg/kg	Rabbit	
9016-87-9	Diphenylmethanediisocyanate, isomers and homologues	oral	LD50	> 2000 mg/kg	Rat	
		inhalative (4 h) vapour	LC50	490 mg/l	Rat	
		inhalative aerosol	ATE	1.5 mg/l		
101-68-8	Diphenylmethane-4,4'-diisocyanate	oral	LD50	> 2000 mg/kg	Rat	OECD 401
		dermal	LD50	> 9400 mg/kg	Rabbit	OECD 402
		inhalative vapour	ATE	11 mg/l		
		inhalative (4 h) aerosol	LC50	0.368 mg/l	Rat	OECD 403
53317-61-6	Aromatic polyisocyanate	inhalative vapour	ATE	11 mg/l		
		inhalative aerosol	ATE	1.5 mg/l		

Irritation and corrosivity

Causes skin irritation.
Causes serious eye irritation.

Sensitising effects

May cause an allergic skin reaction. (Diphenylmethanediisocyanate, isomers and homologues), (Diphenylmethane-4,4'-diisocyanate), (Aromatic polyisocyanate)
May cause allergy or asthma symptoms or breathing difficulties if inhaled. (Diphenylmethanediisocyanate, isomers and homologues), (Diphenylmethane-4,4'-diisocyanate), (Aromatic polyisocyanate)

STOT-single exposure

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

Severe effects after repeated or prolonged exposure

Repeated exposure may cause skin dryness or cracking.
May cause damage to organs through prolonged or repeated exposure. (Diphenylmethanediisocyanate, isomers and homologues), (Diphenylmethane-4,4'-diisocyanate)

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (Diphenylmethanediisocyanate, isomers and homologues), (Diphenylmethane-4,4'-diisocyanate)

Aspiration hazard

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

Practical experience**Other observations**

Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.



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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.

SECTION 12: Ecological information

12.1. Toxicity

Ecological data are not available.

CAS No	Chemical name	Method	Dose	[h] [d]	Species	Source
141-78-6	Ethyl acetate					
	Acute fish toxicity	LC50	> 200 mg/l	96 h		
	Acute algae toxicity	ErC50	> 2000 mg/l	96 h		
	Acute crustacea toxicity	EC50	> 150 mg/l	48 h		
9016-87-9	Diphenylmethanediisocyanate, isomers and homologues					
	Acute fish toxicity	LC50	> 1000 mg/l	96 h	Zebra fish	
101-68-8	Diphenylmethane-4,4'-diisocyanate					
	Acute fish toxicity	LC50	> 1000 mg/l	96 h	Brachydanio rerio	OECD 203
	Acute algae toxicity	ErC50	> 1640 mg/l	72 h	Scenedesmus subspicatus	OECD 201
	Acute crustacea toxicity	EC50	> 1000 mg/l	48 h	Daphnia magna	OECD 202

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.

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.



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SECTION 14: Transport information



Land transport (ADR/RID)

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:	5 L / 30 kg
Hazard No:	33

Other applicable information (land transport)

HAZCHEM: •3YE

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
EmS:	F-E, S-D

Air transport (ICAO)

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
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 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



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EU regulatory information

1999/13/EC (VOC): 710.76 g/l // < 75%

National regulatory information

Water contaminating class (D): 1 - slightly water contaminating

Additional information

Poison Schedule: 6

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

ADG = Australian Code for the Transport of Dangerous Goods by Road & Rail

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

HAZCHEM = HAZardous CHEMicals

WHS = Work Health and Safety

NOHSC = National Occupational Health and Safety Commission (Australia)

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 R phrases (number and full text)

- | | |
|----------|---|
| 11 | Highly flammable. |
| 20 | Harmful by inhalation. |
| 36 | Irritating to eyes. |
| 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. |
| 66 | Repeated exposure may cause skin dryness or cracking. |
| 67 | Vapours may cause drowsiness and dizziness. |

Relevant H and AUH 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. |
| H336 | May cause drowsiness or dizziness. |
| H351 | Suspected of causing cancer. |



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H373
AUH066May cause damage to organs through prolonged or repeated exposure.
Repeated exposure may cause skin dryness or cracking.

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.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)