

RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 1 of 10

SECTION 1: Identification of the substance/mixture and of the company/undertaking
1.1. Product identifier

RAKU-TOOL EH-2910-1 Hardener

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

Amine Hardener for Epoxy resin system manufacture

1.3. Details of the supplier of the safety data sheet

Company name:	RAMPF Tooling Solutions GmbH & Co. KG	
Street:	Robert-Bosch-Str. 8-10	
Place:	D-72661 Grafenberg	
Telephone:	+49(0)7123-9342-1600	Telefax: +49(0)7123/93421666
e-mail:	tooling.solutions@rampf-gruppe.de	

1.4. Emergency telephone number:

Emergency telephone : ++49 (0) 6132 / 84463 GBK GmbH Global Regulatory Compliance, Ingelheim

SECTION 2: Hazards identification
2.1. Classification of the substance or mixture
Regulation (EC) No. 1272/2008

Hazard categories:

Skin corrosion/irritation: Skin Corr. 1B

Serious eye damage/eye irritation: Eye Dam. 1

Respiratory or skin sensitisation: Skin Sens. 1

Reproductive toxicity: Repr. 2

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazardous to the aquatic environment: Aquatic Chronic 3

Hazard Statements:

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause an allergic skin reaction.

Suspected of damaging fertility. Suspected of damaging the unborn child.

May cause damage to organs through prolonged or repeated exposure.

Harmful to aquatic life with long lasting effects.

2.2. Label elements
Regulation (EC) No. 1272/2008
Hazard components for labelling

Phenol, styrenated;

2-piperazin-1-ylethylamine;

3,6-diazaoctanethylenediamin; triethylenetetramine

Signal word: Danger

Pictograms:


Hazard statements

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 2 of 10

P305+P351+P338

or shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER/doctor.

P501

Dispose of contents/container to an appropriate recycling or disposal facility.

2.3. Other hazards

Not fulfilling PBT.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Chemical characterization**

Amine hardener

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
61788-44-1	Phenol, styrenated			10 - < 15 %
	262-975-0		01-2119980970-27	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			
140-31-8	2-piperazin-1-ylethylamine			5 - < 10 %
	205-411-0	612-105-00-4	01-2119471486-30	
	Repr. 2, Acute Tox. 3, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, STOT RE 1, Aquatic Chronic 3; H361FD H311 H302 H314 H318 H317 H372 H412			
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine			1 - < 5 %
	203-950-6	612-059-00-5	01-2119487919-13	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H317 H412			

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.

In the event of persistent symptoms, receive medical treatment.

After inhalation

Move to fresh air in case of accidental inhalation of vapours or decomposition products.

In the event of symptoms refer for medical treatment.

After contact with skin

Wash off immediately 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

Rinse mouth. Immediately give plenty of water (if possible charcoal slurry). Do not induce vomiting.

Never give anything by mouth to an unconscious person.

Summon a doctor immediately.

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

no data available

4.3. Indication of any immediate medical attention and special treatment needed

no data available



RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 3 of 10

5.1. Extinguishing media**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Foam, carbon dioxide (CO₂), dry chemical, water-spray.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Fire may produce:

Nitrous oxides (NO_x), Carbon monoxide and carbon dioxide.

5.3. Advice for firefighters

Use breathing apparatus with independent air supply. Wear full protective suit.

Additional information

Do not release chemically contaminated water into drains, soil or surface waters. Sufficient measures must be taken to retain water used for extinguishing.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

In case of vapour formation use respirator.

Ensure adequate ventilation.

Use personal protective clothing.

Keep away from sources of ignition. No smoking.

6.2. Environmental precautions

Clean contaminated surface thoroughly.

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

Local authorities should be advised if significant spillages cannot be contained.

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.

6.4. Reference to other sections

None

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Keep container tightly closed.

Use only in thoroughly ventilated areas.

Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion

No special protective measures against fire required.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Store in original container. Keep container tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight.

Further information on storage conditions:

Keep away from food, drink and all oil feeding stuffs.

7.3. Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 4 of 10

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
140-31-8	2-piperazin-1-ylethylamine			
Worker DNEL, acute		dermal	local	0,04 mg/cm ²
Worker DNEL, long-term		dermal	local	0,006 mg/cm ²
Worker DNEL, acute		dermal	systemic	20 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	3,3 mg/kg bw/day
Worker DNEL, acute		inhalation	systemic	21,4 mg/m ³
Worker DNEL, long-term		inhalation	systemic	3,6 mg/m ³

PNEC values

CAS No	Substance	Value
140-31-8	2-piperazin-1-ylethylamine	
Environmental compartment		
Freshwater		0,058 mg/l
Marine water		0,0058 mg/l

8.2. Exposure control

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures

- Do not inhale vapours.
- Wash hands before eating, drinking or smoking after handling the product.
- When using, do not eat, drink or smoke.
- Avoid contact with skin, eyes and clothing.
- Remove and wash contaminated clothing as soon as possible.

Eye/face protection

Tightly fitting goggles

Hand protection

Protective gloves resistant to amines, amides, nitrile. Minimum coat thickness 0.4 mm, Permeation resistance (wearable) <Camatril Velours 730> made by www.kcl.de, butyl rubber (Butyl) - # 0.7 mm thickness, Eurogrip 898 made by KCL. 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 of the manufacturer of the protective gloves.

Skin protection

Light protective clothing

Respiratory protection

Use suitable breathing apparatus if there is inadequate ventilation. If product is sprayed, use fresh-air breathing apparatus or (only short-term use) a combination filter A2-P2.

Environmental exposure controls

no data available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	yellowish
Odour:	ammoniac
pH-Value:	alkaline



RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 5 of 10

Melting point:	n.d.
Initial boiling point and boiling range:	n.d.
Flash point:	> 100 °C
Flammability	
Solid:	n.a.
Gas:	n.a.
Explosive properties	
Product does not present an explosive hazard.	
Lower explosion limits:	n.d.
Upper explosion limits:	n.d.
Ignition temperature:	n.d.
Decomposition temperature:	n.d.
Oxidizing properties	
n.a.	
Vapour pressure:	< 1 hPa
(at 20 °C)	
Density (at 20 °C):	~ 0,96 g/cm ³
Water solubility:	Partly soluble
(at 20 °C)	
Partition coefficient:	n.d.
Viscosity / dynamic:	~ 20.000 mPa s
Vapour density:	n.d.
Evaporation rate:	n.d.

SECTION 10: Stability and reactivity**10.1. Reactivity**

Stable at normal conditions

10.2. Chemical stability

Stable at normal conditions

10.3. Possibility of hazardous reactions

Stable at normal conditions

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.
Protect against direct sun radiation.

10.5. Incompatible materials

Strong oxidizing agents
Exothermic reaction with: Acids

10.6. Hazardous decomposition products

Ammonia, Nitrous oxides (NOx), Carbon monoxide and carbon dioxide.

Further information

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Toxicokinetics, metabolism and distribution**

Stable at normal conditions

Acute toxicity

Based on available data (p. 6-7), acute toxicity are not met.

RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 6 of 10

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
61788-44-1	Phenol, styrenated				
	oral	LD ₅₀ > 2000 mg/kg	Rat		
	dermal	LD ₅₀ > 2000 mg/kg	Rabbit		
140-31-8	2-piperazin-1-ylethylamine				
	oral	LD50 > 1000 mg/kg	rat		
	dermal	LD ₅₀ > 2000 mg/kg	Rabbit		
112-24-3	3,6-diazaoctamethylenediamine, 1,4-dithylenetetramine				
	oral	LD50 1600 mg/kg	rat		
	dermal	ATE 1100 mg/kg			

Irritation and corrosion

Causes burns, (C) (H314) (P303+P361+P531)

Sensitising effects

Sensitization through skin contact possible.

Carcinogenic/mutagenic/toxic effects via reproduction

Suspected of damaging to foetus. Suspected of damage to the unborn child.

STOT-single exposure

Based on available data, STOT-single exposure data are not met.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Based on available data, STOT-single exposure data are not met.

Specific effects in aquatic environment

no data available

Additional information on tests

no data available

Practical experience**Observations relevant to application**

no data available

Other observations

no data available

SECTION 12: Ecological information**12.1. Toxicity**

Harmful to aquatic life (H411) (P01) (P02) (P03) (P04) (P05) (P06) (P07) (P08) (P09) (P10) (P11) (P12) (P13) (P14) (P15) (P16) (P17) (P18) (P19) (P20) (P21) (P22) (P23) (P24) (P25) (P26) (P27) (P28) (P29) (P30) (P31) (P32) (P33) (P34) (P35) (P36) (P37) (P38) (P39) (P40) (P41) (P42) (P43) (P44) (P45) (P46) (P47) (P48) (P49) (P50) (P51) (P52) (P53) (P54) (P55) (P56) (P57) (P58) (P59) (P60) (P61) (P62) (P63) (P64) (P65) (P66) (P67) (P68) (P69) (P70) (P71) (P72) (P73) (P74) (P75) (P76) (P77) (P78) (P79) (P80) (P81) (P82) (P83) (P84) (P85) (P86) (P87) (P88) (P89) (P90) (P91) (P92) (P93) (P94) (P95) (P96) (P97) (P98) (P99) (P100)

RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 7 of 10

CAS No	Chemical name	LC50	ErC50	96 h	Species	Source	Method
61788-44-1	Phenol, styrenated						
	Acute fish toxicity	LC50	16,1	96 h	Fish		
	Acute algae toxicity	ErC50	3,14	72 h	algae		
	Acute crustacea toxicity			48 h	Daphnia		
140-31-8	2-piperazine-1-ylethylamine						
	Acute fish toxicity	LC50	495 mg/l	96 h	Leuciscus idus		
	Acute algae toxicity	ErC50	495 mg/l	72 h	Selenastrum capricornutum		
	Acute crustacea toxicity			48 h	Daphnia magna		

12.2. Persistence and degradability

no data available

12.3. Bioaccumulative potential

no data available

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
140-31-8	2-piperazine-1-ylethylamine	-1,48
112-24-3	3,6-diazaoctanethylenediamine	-1,66

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects

no data available

Further information

Do not flush into surface water or sanitary sewer system.
Hazard to waters

SECTION 13: Disposal considerations

13.1. Waste treatment options

Advice on disposal

Where possible recycling is preferred to disposal.
Can be incinerated, when in compliance with local regulations.
It is not possible to give a waste code number according to the European waste catalogue because only the manufacturer can determine the composition of a specific container.
The waste code number must be agreed with your supplier / manufacturer / competent authority.

Contaminated packaging

Contaminated packagings are to be treated like the product itself.
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.
Packaging that cannot be used should be disposed of like the product.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:

UN 2735

14.2. UN proper shipping name:

LIQUIDS, LIQUID, CORROSIVE, N.O.S. (3,6-diazaoctanethylenediamin;
3,6-piperazinediethylenediamin; 2-piperazin-1-ylethylamine)

according to Regulation (EC) No 1907/2006

RAKU-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 8 of 10

14.4. Packing group: III
Hazard label: 8



Classification code: C7
 Special Provisions: 274
 Limited quantity: 5 L
 Excepted quantity: E1
 Transport category: 3
 Hazard No: 80
 Tunnel restriction code:

Marine transport (IMDG)

14.1. UN number: UN 2735

14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (3,6-diazaoctanethylenediamin, triethylentetramine; 2-piperazin-1-ylethylamine)

14.3. Transport hazard class(es): 8

14.4. Packing group:

Hazard label: 8



Special Provisions: 223, 274
 Limited quantity: L
 Excepted quantity: E1
 EmS: F-A, S-B
 Segregation group: alkalic

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 2735

14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (3,6-diazaoctanethylenediamin, triethylentetramine; 2-piperazin-1-ylethylamine)

14.3. Transport hazard class(es): 8

14.4. Packing group: III

Hazard label: 8



Special Provisions: A3, A503
 Limited quantity Passenger: 5 L
 Passenger LQ: Y841
 Excepted quantity: E1
 IATA-packing instructions - Passenger: 852
 IATA-max. quantity - Passenger: 5 L
 IATA-packing instructions - Cargo: 856
 IATA-max. quantity - Cargo: 60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for use

Keep away from food, drink and animal feeding stuffs.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

no data available

Other applicable information

RAMP-TOOL EH-2910-1 Hardener

Print date: 29.03.2018

Page 9 of 10

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulatory classification specific for the substance or mixture

EU regulatory information

Additional information

This product does not contain substances of very high concern > 0,1% (Regulation (EC) No 1907/2006 (REACH), Article 57).

National regulatory information

Water contaminating class (D): ... by water contaminating

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

SECTION 16: Other information

Changes

This data sheet ... changes from ... in section(s) 9, 16

Abbreviations and acronyms

"(n.a. = not applicable; n.d. = not determined)"

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Skin Corr. 1B; H314	Calculation
Eye Dam. 1; H318	Calculation
Skin Sens. 1; H317	Calculation
Repr. 2; H361fd	Calculation method
STOT RE 2; H373	Calculation method
Aquatic Chronic 3; H412	Calculation

Relevant H and EU

- H302 Harmful if swallowed
- H311 Toxic in contact with water
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic reaction.
- H318 Causes serious eye damage.
- H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
- H372 Harmful to aquatic life through prolonged or repeated exposure (initial, acute, and chronic).
- H373 May cause damage to organs through prolonged or repeated exposure
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

Further Information

The classification is based on the calculation method according to Regulation (EU) No. 1272/2008

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 ... requirements for the product (s) and is based on the present level of our knowledge.

The delivery specifications are mentioned in the corresponding product sheet.

This data does not constitute a warranty for the characteristics of the product(s) as assumed by the legal warranty regulations.

Print date: 29.03.2018

RAMPF TOOL EH-2910-1 Hardener

Page 10 of 10

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