



RAKU® TOOL EH-2907-3 Hardener

Revision date: 20.09.2021

EH-2907-3

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

1.1. Product identifier

RAKU® TOOL EH-2907-3 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: Suter Kunststoffe AG
Street: Aefligenstrasse 3
Place: CH-3312 Fraubrunnen
Telephone: +41 (0)31 763 60 60
e-mail: info@swiss-composite.ch

1.4. Emergency telephone

Tox Info Suisse

number:

Emergency number: 145 - from abroad: + 41 44 251 51 51

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

Hazard categories:

Acute toxicity: Acute Tox. 4

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Corr. 1B

Serious eye damage/eye irritation: Eye Dam. 1

Respiratory or skin sensitisation: Skin Sens. 1

Hazardous to the aquatic environment: Aquatic Chronic 2

Hazard Statements:

Harmful if swallowed.

Harmful if inhaled.

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause an allergic skin reaction.

Toxic to aquatic life with long lasting effects.

2.2. Label elements

GB CLP Regulation

Hazard components for labelling

Reaction mass of trientine and trientine, mono- and di-propoxylated;

1,3-Benzenedimethanamine;

benzyl alcohol;

3,6-diazaoctanethylenediamin; triethylenetetramine

Signal word:

Danger

Pictograms:



Hazard statements

H302+H332

Harmful if swallowed or if inhaled.

H314

Causes severe skin burns and eye damage.

H317

May cause an allergic skin reaction.

H411

Toxic to aquatic life with long lasting effects.

Precautionary statements

P260

Do not breathe vapour/aerosol.

P264

Wash hands thoroughly after handling.

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

Safety Data Sheet

according to UK REACH Regulation



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P305+P351+P338 water 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.

2.3. Other hazards

None known

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	
	GHS Classification			
	Reaction mass of trientine and trientine, mono- and di-propoxylated			35 - < 40 %
	942-835-1		01-2120098765-38	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1B, Aquatic Chronic 2; H315 H319 H317 H411			
1477-55-0	1,3-Benzenedimethanamine			25 - 50 %
	216-032-5			
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H332 H302 H314 H317 H412			
100-51-6	benzyl alcohol			20 - < 25 %
	202-859-9	603-057-00-5	01-2119492630-38	
	Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2; H332 H302 H319			
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.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
	942-835-1	Reaction mass of trientine and trientine, mono- and di-propoxylated	35 - < 40 %
	dermal: LD50 = 2150 mg/kg; oral: LD50 = 4500 mg/kg		
1477-55-0	216-032-5	1,3-Benzenedimethanamine	25 - 50 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = 3100 mg/kg; oral: LD50 = 930 mg/kg		
100-51-6	202-859-9	benzyl alcohol	20 - < 25 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = > 4,178 mg/l (dusts or mists); dermal: LD50 = 2000 mg/kg; oral: LD50 = 1040 mg/kg		
112-24-3	203-950-6	3,6-diazaoctanethylenediamin; triethylenetetramine	1 - < 5 %
	dermal: ATE = 1100 mg/kg; oral: LD50 = 1600 mg/kg		

Further Information

none

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated, saturated clothing immediately.
Remove affected person from the danger area and lay down.

After inhalation

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

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In case of respiratory tract irritation, consult a physician.

After contact with skin

Wash with plenty of water/soap.

If skin irritation or rash occurs: Get medical advice/attention.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water.

Never give anything by mouth to an unconscious person or a person with cramps.

Call a physician immediately.

Do NOT induce vomiting.

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

There are no data available on the mixture itself.

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

There are no data available on the mixture itself.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Foam, Carbon dioxide (CO₂), Dry extinguishing powder, Water spray jet

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated:

Nitrogen oxides (NO_x), Carbon monoxide, Carbon dioxide (CO₂)

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

In case of vapour formation use respirator.

Provide adequate ventilation.

Keep away from sources of ignition - No smoking.

6.2. Environmental precautions

Clear contaminated areas thoroughly.

Do not allow to enter into surface water or drains.

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

6.3. Methods and material for containment and cleaning up

Other information

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Take up mechanically, placing in appropriate containers for disposal.

6.4. Reference to other sections

Wear personal protection equipment (refer to section 8).

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Keep container tightly closed.

Provide adequate ventilation.


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Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

Do not breathe vapour.

Wash hands before breaks and after work.

Do not eat, drink or smoke when using this product.

Avoid contact with skin, eyes and clothes.

Remove and wash contaminated clothes before re-use.

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

Keep/Store only in original container.

Keep container tightly closed in a cool, well-ventilated place.

Protect from direct sunlight.

Further information on storage conditions

Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

There are no data available on the mixture itself.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
100-51-6	benzyl alcohol			
Worker DNEL, long-term		dermal	systemic	9,5 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	90 mg/m ³
Worker DNEL, acute		inhalation	systemic	450 mg/m ³
Worker DNEL, acute		dermal	systemic	47 mg/kg bw/day

PNEC values

CAS No	Substance		
Environmental compartment			Value
1477-55-0	1,3-Benzenedimethanamine		
Freshwater			0,094 mg/l
Marine water			0,0094 mg/l
100-51-6	benzyl alcohol		
Freshwater			1 mg/l
Marine water			0,1 mg/kg
Freshwater sediment			5,27 mg/kg
Marine sediment			0,527 mg/kg
Micro-organisms in sewage treatment plants (STP)			39 mg/l
Soil			0,456 mg/kg

8.2. Exposure controls
Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.

Individual protection measures, such as personal protective equipment
Eye/face protection

Tightly fitting goggles

Hand protection

Protective gloves resistant to chemicals made off nitrile, Minimum coat thickness 0.4 mm, Permeation

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resistance (wear duration) approx. 480 minutes, i.e. protective glove <Camatril Velours 730> made by www.kcl.de. , butyl rubber (Butyl) - = 0.7 mm thickness; i.e. <Butoject 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 given by the manufacturer of protective gloves.

Skin protection

Wear suitable protective clothing.
 Safety Shoes

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.
 If product is sprayed, use fresh-air breathing apparatus or (only short-term use) a combination filter A2-P2.

Environmental exposure controls

There are no data available on the mixture itself.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	blue
Odour:	not determined

Changes in the physical state

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	not determined
Flash point:	> 100 °C

Flammability

Solid/liquid:	not applicable
Gas:	not applicable

Explosive properties

Product does not present an explosion hazard.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	not determined
Decomposition temperature:	not determined

Oxidizing properties

not applicable

pH-Value:	not determined
Viscosity / dynamic:	270 mPa·s
Water solubility: (at 20 °C)	Immiscible
Partition coefficient n-octanol/water:	not determined
Vapour pressure: (at 20 °C)	not determined
Density:	1,03 g/cm³
Relative vapour density:	not determined

9.2. Other information

Other safety characteristics

Evaporation rate:	not determined
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Further Information

There are no data available on the mixture itself.


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SECTION 10: Stability and reactivity
10.1. Reactivity

The product is stable under storage at normal ambient temperatures.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Acids

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.

Protect from direct sunlight.

10.5. Incompatible materials

Oxidising agent, strong, Acids, Alkali (lye)

10.6. Hazardous decomposition products

Ammonia, Nitrogen oxides (NOx), Carbon monoxide, Carbon dioxide

Further information

The product is stable under storage at normal ambient temperatures.

SECTION 11: Toxicological information
11.1. Information on hazard classes as defined in GB CLP Regulation
Acute toxicity

Harmful if swallowed.

Harmful if inhaled.

ATEmix calculated

ATE (oral) 1897,9 mg/kg; ATE (inhalation aerosol) 3,002 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
	Reaction mass of trientine and trientine, mono- and di-propoxylated				
	oral	LD50 4500 mg/kg	Rat		
	dermal	LD50 2150 mg/kg	Rat		
1477-55-0	1,3-Benzenedimethanamine				
	oral	LD50 930 mg/kg	Rat		
	dermal	LD50 3100 mg/kg	Rabbit		
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			
100-51-6	benzyl alcohol				
	oral	LD50 1040 mg/kg	Mouse		
	dermal	LD50 2000 mg/kg	Rabbit		
	inhalation vapour	ATE 11 mg/l			
	inhalation (4 h) aerosol	LC50 > 4,178 mg/l	Rat		
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine				
	oral	LD50 1600 mg/kg	Rat		
	dermal	ATE 1100 mg/kg			


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Irritation and corrosivity

Causes severe skin burns and eye damage.
 Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (Reaction mass of trientine and trientine, mono- and di-propoxylated;
 1,3-Benzenedimethanamine; 3,6-diazaoctanethylenediamin; triethylenetetramine)

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

There are no data available on the mixture itself.

Practical experience

There are no data available on the mixture itself.

11.2. Information on other hazards**Endocrine disrupting properties**

There are no data available on the mixture itself.

Other information

There are no data available on the mixture itself.

SECTION 12: Ecological information
12.1. Toxicity

There are no data available on the mixture itself.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
	Reaction mass of trientine and trientine, mono- and di-propoxylated					
	Acute fish toxicity	LC50 > 4,1 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)		
	Acute algae toxicity	ErC50 4,1 mg/l	72 h	Pseudokirchneriella subcapitata		
	Acute crustacea toxicity	EC50 48 mg/l	48 h	Daphnia magna (Big water flea)		
1477-55-0	1,3-Benzenedimethanamine					
	Acute fish toxicity	LC50 87,6 mg/l	96 h	Danio rerio (zebrafish)		
	Acute algae toxicity	ErC50 > 50 mg/l	72 h	Pseudokirchneriella subcapitata		
	Acute crustacea toxicity	EL50 35,1 mg/l	48 h	Daphnia magna (Big water flea)		
100-51-6	benzyl alcohol					
	Acute fish toxicity	LC50 460 mg/l	96 h	Pimephales promelas (fathead minnow)		
	Acute algae toxicity	ErC50 640 mg/l	96 h	algae		
	Acute crustacea toxicity	EC50 230 mg/l	48 h	Daphnia magna (Big water flea)		

12.2. Persistence and degradability

There are no data available on the mixture itself.

12.3. Bioaccumulative potential


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There are no data available on the mixture itself.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
100-51-6	benzyl alcohol	1,05
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine	-1,66

12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

There are no data available on the mixture itself.

12.7. Other adverse effects

There are no data available on the mixture itself.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations
13.1. Waste treatment methods
Disposal recommendations

Where possible recycling is preferred to disposal.

Can be incinerated, when in compliance with local regulations.

It is not possible to give this product a waste code number according to the European waste catalogue because only the intended use of the user consents the assignment of a specific code number.

The waste code number must be agreed with the disposer / manufacturer / competent authority.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

Contaminated packages must be completely emptied and can be re-used following proper cleaning.

Packing which cannot be properly cleaned must be disposed of.

SECTION 14: Transport information
Land transport (ADR/RID)
14.1. UN number:

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S. (1,3-Benzenedimethanamine)

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8



Classification code:

C7

Special Provisions:

274

Limited quantity:

1 L

Excepted quantity:

E2

Transport category:

2

Hazard No:

80

Tunnel restriction code:

E

Marine transport (IMDG)
14.1. UN number:

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S. (m-phenylenbis (methylamine))

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8

Safety Data Sheet

according to UK REACH Regulation

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Marine pollutant: yes
Special Provisions: 274
Limited quantity: 1 L
Excepted quantity: E2
EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 2735
14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (m-phenylenbis (methylamine))
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8



Special Provisions: A3 A803
Limited quantity Passenger: 0.5 L
Passenger LQ: Y840
Excepted quantity: E2
IATA-packing instructions - Passenger: 851
IATA-max. quantity - Passenger: 1 L
IATA-packing instructions - Cargo: 855
IATA-max. quantity - Cargo: 30 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes



14.6. Special precautions for user

There are no data available on the mixture itself.

14.7. Maritime transport in bulk according to IMO instruments

There are no data available on the mixture itself.

Other applicable information

There are no data available on the mixture itself.

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 3

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 hazard class (D): 2 - obviously hazardous to water

Additional information

"ZH 1/129 ""Data Sheet: Irritating substances / corrosive substances (M 004)""

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
1,3-Benzenedimethanamine

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benzyl alcohol

SECTION 16: Other information**Classification for mixtures and used evaluation method according to GB CLP Regulation**

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Acute Tox. 4; H332	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H302+H332	Harmful if swallowed or if inhaled.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Further Information

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

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.

Key literature references and sources for data Regulation (EC) No 1907/2006; Regulation (EC) No. 1272/2008

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