

Safety Data Sheet

according to UK REACH Regulation



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RAKU® TOOL EH-2950-1 Hardener

Revision date: 10.06.2022

Product code: EH-2950-1

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

1.1. Product identifier

RAKU® TOOL EH-2950-1 Hardener

UFI: 5TPM-Q24T-K00Q-D5D7

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

Use of the substance/mixture

model building material
Hardener

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

number: Tox Info Suisse
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

Acute Tox. 4; H302
Acute Tox. 4; H332
Skin Corr. 1B; H314
Eye Dam. 1; H318
Skin Sens. 1A; H317
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements

GB CLP Regulation

Hazard components for labelling

Triethylenetetramine;
m-phenylenebis(methylamine);
2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine

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.
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.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338 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.

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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	
	Classification (GB CLP Regulation)			
90640-67-8	Triethylenetetramine			50 - < 55 %
	203-950-6		01-2119487919-13	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H317 H412			
1477-55-0	m-phenylenebis(methylamine)			25 - < 50 %
	216-032-5		01-2119480150-50	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H332 H302 H314 H317 H412			
25513-64-8	2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine			1 - < 5 %
	247-063-2		01-2119560598-25	
	Acute Tox. 4, Skin Corr. 1A, Skin Sens. 1A; H302 H314 H317			

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		
90640-67-8	203-950-6	Triethylenetetramine	50 - < 55 %
	dermal: LD50 = 1466 mg/kg; oral: LD50 = 1716 mg/kg		
1477-55-0	216-032-5	m-phenylenebis(methylamine)	25 - < 50 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = 1,34 mg/l (dusts or mists); dermal: LD50 = 3100 mg/kg; oral: LD50 = 646 mg/kg		
25513-64-8	247-063-2	2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine	1 - < 5 %
	oral: LD50 = 910 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.
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.



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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 advice

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.
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

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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	Exposure route	Effect	Value
90640-67-8	Triethylenetetramine			
Worker DNEL, long-term		inhalation	systemic	0,54 mg/m ³
Worker DNEL, acute		inhalation	systemic	5380 mg/m ³
Worker DNEL, long-term		dermal	systemic	0,57 mg/kg bw/day
1477-55-0	m-phenylenebis(methylamine)			
Worker DNEL, long-term		inhalation	systemic	1,2 mg/m ³
Worker DNEL, long-term		inhalation	local	0,2 mg/m ³
Worker DNEL, long-term		dermal	systemic	0,33 mg/kg bw/day

PNEC values

CAS No	Substance	Environmental compartment	Value
90640-67-8	Triethylenetetramine		
		Freshwater	0,027 mg/l
		Freshwater sediment	8,572 mg/kg
		Marine sediment	0,857 mg/kg
		Micro-organisms in sewage treatment plants (STP)	0,13 mg/l
		Soil	1,25 mg/kg
1477-55-0	m-phenylenebis(methylamine)		
		Freshwater	0,094 mg/l
		Marine water	0,0094 mg/l
		Freshwater sediment	0,43 mg/kg
		Marine sediment	0,043 mg/kg
		Micro-organisms in sewage treatment plants (STP)	10 mg/l
		Soil	0,045 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 resistance (wear duration) approx. 480 minutes, i.e. protective glove <Camatril Velours 730> made by



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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:	light yellow
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
pH-Value:	not determined
Viscosity / dynamic:	450 mPa·s
Water solubility: (at 20 °C)	not determined
Partition coefficient n-octanol/water:	not determined
Vapour pressure: (at 20 °C)	not determined
Density:	1,02 g/cm ³
Relative vapour density:	not determined
Particle characteristics:	not applicable

9.2. Other information

Information with regard to physical hazard classes

Oxidizing properties
not applicable

Other safety characteristics

Evaporation rate: not determined

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

Toxicokinetics, metabolism and distribution

no data available

Acute toxicity

Harmful if swallowed.

Harmful if inhaled.

ATEmix calculated

ATE (oral) 1363,0 mg/kg; ATE (inhalation dust/mist) 2,824 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
90640-67-8	Triethylenetetramine				
	oral	LD50 mg/kg	1716	Rat	
	dermal	LD50 mg/kg	1466	Rabbit	
1477-55-0	m-phenylenebis(methylamine)				
	oral	LD50 mg/kg	646	Rat	OECD 401
	dermal	LD50 mg/kg	3100	Rat	
	inhalation vapour	ATE	11 mg/l		
	inhalation (4 h) dust/mist	LC50	1,34 mg/l	Rat	OECD 403
25513-64-8	2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine				
	oral	LD50 mg/kg	910	Rat	

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (Triethylenetetramine; m-phenylenebis(methylamine); 2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine)

Carcinogenic/mutagenic/toxic effects for reproduction

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

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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
90640-67-8	Triethylenetetramine					
	Acute fish toxicity	LC50	330 mg/l	96 h	Pimephales promelas (fathead minnow)	
	Acute algae toxicity	ErC50	20 mg/l	72 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50 mg/l	31,1	48 h	Daphnia magna (Big water flea)	
1477-55-0	m-phenylenebis(methylamine)					
	Acute fish toxicity	LC50 mg/l	87,6	96 h	Oryzias latipes (Ricefish)	OECD 203
	Acute algae toxicity	ErC50 mg/l	33,3	72 h	Pseudokirchneriella subcapitata	
	Acute crustacea toxicity	EC50 mg/l	15,2	48 h	Daphnia magna (Big water flea)	OECD 202

12.2. Persistence and degradability

There are no data available on the mixture itself.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
90640-67-8	Triethylenetetramine			
	OECD 302A	20%	84	
	Not readily biodegradable (according to OECD criteria)			
1477-55-0	m-phenylenebis(methylamine)			
	OECD 301B	49 %	28	
	Biodegradable.			

12.3. Bioaccumulative potential

There are no data available on the mixture itself.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
25513-64-8	2,2,4(or 2,4,4)-trimethylhexane-1,6-diamine	-0,3

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12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

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 or ID number:

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S. (Triethylenetetramine; m-phenylenebis(methylamine))

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 or ID number:

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S. (Triethylenetetramine; m-phenylenebis(methylamine))

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8



Marine pollutant:

no

Special Provisions:

274

Limited quantity:

1 L

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Excepted quantity: E2
EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 2735
14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S.(Triethylenetetramine;
m-phenylenebis(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: No

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:

Triethylenetetramine
m-phenylenebis(methylamine)

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s) 2

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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. 1A; H317	Calculation method
Aquatic Chronic 3; H412	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.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
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.)