

Safety Data Sheet

according to UK REACH Regulation

Catalyst (hardener) T 40

Revision date: 03.04.2023

Product code: 415120B

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

Catalyst (hardener) T 40

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

Hardener (Crosslinker)

Uses advised against

Hardener (Crosslinker)

1.3. Details of the supplier of the safety data sheet

Company name: R&G Faserverbundwerkstoffe GmbH

Composite Technology

Street: Im Meißel 7 - 13

Place: D-71111 Waldenbuch

Post-office box: 1145

D-71107 Waldenbuch

Telephone: +49 (0)7157 5304-60

Telefax: +49 (0)7157 5304-70

e-mail: info@r-g.de

Internet: www.r-g.de

Responsible Department: Management

1.4. Emergency telephone number: Vergiftungs-Informations-Zentrale Freiburg

Tel: +49 (0)761 19240

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****GB CLP Regulation**

Hazard categories:

Flammable liquid: Flam. Liq. 3

Acute toxicity: Acute Tox. 4

Serious eye damage/eye irritation: Eye Irrit. 2

Specific target organ toxicity - single exposure: STOT SE 3

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazardous to the aquatic environment: Aquatic Chronic 4

Hazard Statements:

Flammable liquid and vapour.

Harmful if inhaled.

Causes serious eye irritation.

May cause respiratory irritation.

May cause damage to organs through prolonged or repeated exposure.

May cause long lasting harmful effects to aquatic life.

2.2. Label elements**GB CLP Regulation****Hazard components for labelling**

tetraethyl silicate; ethyl silicate

Bis(neodecanoyloxy)dioctylstannane

Signal word: Warning

Pictograms:



H226 Flammable liquid and vapour.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

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

H413 May cause long lasting harmful effects to aquatic life.

Precautionary statements

P273 Avoid release to the environment.

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and

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P370+P378 easy to do. Continue rinsing.
In case of fire: Use Water spray jet, Extinguishing powder, Foam, Carbon dioxide (CO₂) to extinguish.

2.3. Other hazards

No information available. Endocrine disrupting properties - human health: The substance/mixture does not contain any components that exhibit endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 at levels of 0.1% or higher. Endocrine disrupting properties - environment: The substance/mixture does not contain any components that exhibit endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1% or more.

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

Organo-Zinnverbindung + Kieselsäureester

Hazardous components

CAS No	Chemical name	Index No	REACH No	Quantity
	EC No			
	GHS Classification			
78-10-4	Tetraethylsilikat			>50 – <60 %
	201-083-8			
68299-15-0	Bis(neodecanoyloxy)dioctylstannane			20 - 30 %
	269-595-4			
	STOT RE 2, Aquatic Chronic 4; H373 H413			

Full text of H and EUH statements: see section 16.

Further Information

This product does not contain any substances of very high concern (REACH Regulation (EC) No 1907/2006, Article 57) above = 0.1%.

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Move persons to safety. Self-protection of the first aider

After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

Wash with plenty of water. Immediately remove any contaminated clothing, shoes or stockings. Medical treatment necessary.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink plenty of water. Induce vomiting when the affected person is not unconscious. Medical treatment necessary.

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

No information available.

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

In case of inhalation: Apply cortisone spray at early stage.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**Water spray jet, Carbon dioxide (CO₂), Foam, Extinguishing powder.**5.2. Special hazards arising from the substance or mixture**

Combustible. Vapours can form explosive mixtures with air. In case of fire, formation of hazardous combustion gases or vapours possible. Exposure to combustion products can be a health hazard! Hazardous fire products: toxic and very toxic

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fumes . Hazardous fire products: toxic and very toxic fumes.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. 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**

Remove all sources of ignition. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not allow to enter waters, sewage and soil. Close leak if this can be done without risk. Contain spilled liquid with suitable material (e.g. earth). Contain contaminated water/extinguishing water. Dispose of in properly labelled containers. In case of spillage into water, sewage system or underground, notify competent authority.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

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

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air.

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

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints on joint storage

Do not store together with: Material, oxygen-rich, Oxidising. Pyrophoric or self-heating substances.

7.3. Specific end use(s)

Hardener (Crosslinker)

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
78-10-4	Tetraethyl orthosilicate	5	44		TWA (8 h)	WEL

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DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
78-10-4	Tetraethylsilikat			
Worker DNEL, acute		dermal	systemic	12,1 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	12,1 mg/kg bw/day
Worker DNEL, acute		inhalation	systemic	85 mg/m ³
Worker DNEL, acute		inhalation	local	85 mg/m ³
Worker DNEL, long-term		inhalation	systemic	85 mg/m ³
Worker DNEL, long-term		inhalation	local	85 mg/m ³
Consumer DNEL, acute		dermal	systemic	8,4 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	8,4 mg/kg bw/day
Consumer DNEL, acute		inhalation	systemic	25 mg/m ³
Consumer DNEL, acute		inhalation	local	25 mg/m ³
Consumer DNEL, long-term		inhalation	systemic	25 mg/m ³
Consumer DNEL, long-term		inhalation	local	25 mg/m ³

PNEC values

CAS No	Substance	Value
78-10-4	Tetraethylsilikat	
Freshwater		0,192 mg/l
Marine water		0,0192 mg/l
Freshwater sediment		0,18 mg/kg
Marine sediment		0,018 mg/kg
Micro-organisms in sewage treatment plants (STP)		4000 mg/l
Soil		0,05 mg/kg

8.2. Exposure controls**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

When handling the product, the use of protective gloves is recommended, according to recognised standards such as EN374. Recommended glove material: Protective gloves made of nitrile rubber. Material thickness: > 0.1 mm Breakthrough time: > 480 min Recommended glove material: Protective gloves made of butyl rubber Material thickness: > 0.3 mm Breakthrough time: > 480 min Please observe the specifications of the glove supplier regarding permeability and breakthrough time. Also consider the specific local conditions under which the product is used, such as cut hazard, abrasion and contact time. It should be noted that in practice the daily use time of a chemical protective glove may be significantly shorter than the permeation time determined by testing due to the many influencing factors (for example temperature).

Skin protection

Wear suitable protective clothing.

Respiratory protection

If inhalation exposure above the occupational exposure limit cannot be excluded, use appropriate respiratory protective equipment. Suitable respiratory protective equipment: Respirator with full face mask, according to recognised standards

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such as EN 136. Recommended filter type: ABEK gas filter (certain inorganic, organic and acid gases and vapours; ammonia/amines), according to recognised standards such as EN 14387. In case of exposure to spray or aerosol, wear suitable respiratory protective equipment and protective clothing. Suitable respiratory protective equipment: Respirator with full face mask, according to recognised standards such as EN 136. Recommended filter type: ABEK-P2 combination filter (certain inorganic, organic and acid gases and vapours; ammonia/amines; particulates), according to recognised standards such as EN 14387. Respirators must be used for long or heavy exposure. Suitable respirator: Self-contained breathing apparatus, according to recognised standards such as EN 137. Observe the breathing time limit for respiratory protection and the instructions of the equipment manufacturer.

Environmental exposure controls

Do not allow to enter waters and soil. Do not discharge larger quantities into sewage treatment plants.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid	
Colour:	colourless	
Odour:	characteristic	
pH-Value:		not determined

Changes in the physical state

Melting point/freezing point:		not determined
Boiling point or initial boiling point and boiling range:		160 - 161 °C
Flash point:		34 °C

Flammability

Solid:		not applicable
Gas:		not applicable
Lower explosion limits:		1,3
Upper explosion limits:		not determined
Auto-ignition temperature:		210 °C

Self-ignition temperature

Solid:		not applicable
Gas:		not applicable
Decomposition temperature:		not determined

Oxidizing properties

Not oxidising.		
Vapour pressure: (at 20 °C)		1 hPa
Density (at 25 °C):		0,982 g/cm ³
Water solubility:		The study does not need to be conducted because the substance is known to be insoluble in water.

Solubility in other solvents

not determined		
Partition coefficient n-octanol/water:		not determined
Viscosity / dynamic: (at 23 °C)		2 mPa·s
Relative vapour density:		not determined
Evaporation rate:		not determined

9.2. Other information

Solid content:	not determined
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SECTION 10: Stability and reactivity**10.1. Reactivity**

Flammable, Ignition hazard.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

No known hazardous reactions.

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10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. Protect from moisture.

10.5. Incompatible materials

Keep away from: Water, Base, Acid. The reaction takes place with the formation of alcohols.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicokinetics, metabolism and distribution

No toxicological test data for the total product are available for this endpoint.

ATEmix calculated

ATE (inhalation vapour) 18,33 mg/l; ATE (inhalation aerosol) 2,500 mg/l

Irritation and corrosivity

No toxicological test data for the total product are available for this endpoint.

Sensitising effects

No toxicological test data for the total product are available for this endpoint.

STOT-repeated exposure

No toxicological test data for the total product are available for this endpoint.

Aspiration hazard

No toxicological test data for the total product are available for this endpoint.

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Special hazards arising from the substance or mixture!

SECTION 12: Ecological information

12.1. Toxicity

May cause long-term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Reacts with water to form ethanol and silica.

12.3. Bioaccumulative potential

On the basis of existing data about the elimination/degradation and bioaccumulation potential longer term damage to the environment cannot be ruled out.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

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

12.6. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Material that cannot be reused, reprocessed or recycled should be disposed of at an approved facility in accordance with national, state and local regulations. Depending on regulations, waste treatment methods may include, for example, landfilling or incineration.

Contaminated packaging

Packaging must be completely emptied (drip-free, free-flowing, spatula-clean). Packaging should preferably be reused or recycled in accordance with the applicable local/national regulations. Packaging that cannot be cleaned must be disposed of in the same way as the substance.

SECTION 14: Transport information

Land transport (ADR/RID)

<u>14.1. UN number:</u>	UN 1292
<u>14.2. UN proper shipping name:</u>	TETRAETHYL SILICATE
<u>14.3. Transport hazard class(es):</u>	3
<u>14.4. Packing group:</u>	III
Hazard label:	3

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Classification code: F1
 Limited quantity: 5 L
 Excepted quantity: E 1
 Transport category: 3
 Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number: UN 1292
14.2. UN proper shipping name: TETRAETHYL SILICATE
14.3. Transport hazard class(es): 3
14.4. Packing group: III
 Hazard label: 3



Classification code: F1
 Limited quantity: 5 L
 Excepted quantity: E 1

Marine transport (IMDG)

14.1. UN number: UN 1292
14.2. UN proper shipping name: TETRAETHYL SILICATE
14.3. Transport hazard class(es): 3
14.4. Packing group: III
 Hazard label: 3



Special Provisions: -
 Limited quantity: 5 L
 EmS: F-E, S-D

Other applicable information (marine transport)

Limited quantity: E1

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 1292
14.2. UN proper shipping name: TETRAETHYL SILICATE
14.3. Transport hazard class(es): 3
14.4. Packing group: III
 Hazard label: 3



IATA-packing instructions - Cargo: 366

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Combustible liquids.

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

not applicable

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

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Restrictions on use (REACH, annex XVII):
Entry 3, Entry 40

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
3 - highly hazardous to water

Water hazard class (D):

15.2. Chemical safety assessment

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

SECTION 16: Other information**Abbreviations and acronyms**

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H413	May cause long lasting harmful effects to aquatic life.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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