

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 1 of 9

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**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****Regulation (EC) No. 1272/2008**

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.

Causes serious eye irritation.

Harmful if inhaled.

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**Regulation (EC) No. 1272/2008****Hazard components for labelling**

ethyl silicate, tetraethyl silicate

Bis(neodecanoyloxy)dioctylstannane

Signal word: Warning**Pictograms:**

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 2 of 9

Hazard statements

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.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370+P378	In case of fire: Use Water spray jet, Extinguishing powder, Foam, Carbon dioxide (CO ₂) to extinguish.

2.3. Other hazards

No information available.

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

Organo-Zinnverbindung + Kieselsäureester

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
78-10-4	ethyl silicate, tetraethyl silicate			50 - 60 %
	201-083-8	014-005-00-0		
	Flam. Liq. 3, Acute Tox. 4, Eye Irrit. 2, STOT SE 3; H226 H332 H319 H335			
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.

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 3 of 9

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.

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 uncontrolled discharge of product into the environment. Danger of explosion

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. 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 exhaust 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.

Advice on storage compatibility

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

7.3. Specific end use(s)

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 4 of 9

Hardener (Crosslinker)

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****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 with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Suitable material: Butyl caoutchouc (butyl rubber), NBR (Nitrile rubber).

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Combination filtering device (EN 14387) A

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

Physical state:	liquid
Colour:	light yellow
Odour:	characteristic

pH-Value:	not determined	Test method
-----------	----------------	--------------------

Changes in the physical state

Melting point:	not determined
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
-------------------------	-----

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 5 of 9

Upper explosion limits: not determined

Ignition temperature: 210 °C

Auto-ignition temperature

Solid: not applicable

Gas: not applicable

Decomposition temperature: not determined

Oxidizing properties

Not oxidizing.

Vapour pressure: 1 hPa
(at 20 °C)

Density (at 25 °C): 1,04 g/cm³

Water solubility: insoluble

Solubility in other solvents

not determined

Partition coefficient: not determined

Viscosity / dynamic: 2 mPa·s
(at 23 °C)

Vapour density: not determined

Evaporation rate: not determined

9.2. Other information

Solid content: not determined

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.

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.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

ATEmix calculated

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 6 of 9

Acute toxicity

CAS No	Chemical name			
	Exposure route	Dose	Species	Source
78-10-4	ethyl silicate, tetraethyl silicate			
	oral	LD50 6270 mg/kg	Rat	GESTIS
	dermal	LD50 5880 mg/kg	Rabbit	GESTIS
	inhalative vapour	ATE 11 mg/l		
	inhalative (4 h) aerosol	LC50 > 10 mg/l	Rat	OECD 403

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.

CAS No	Chemical name				
	Aquatic toxicity	Dose	[h] [d]	Species	Source
78-10-4	ethyl silicate, tetraethyl silicate				
	Acute fish toxicity	LC50 > 245 mg/l	96 h	Brachydanio rerio (zebra-fish)	Regulation (EC) No. 440/2008, Annex, C.1
	Acute algae toxicity	ErC50 > 22 mg/l	72 h	Pseudokirchnerella subcapitata	OECD 201
	Acute crustacea toxicity	EC50 > 75 mg/l	48 h	Daphnia magna (Big water flea)	OECD 202
	Fish toxicity	NOEC >= 245 mg/l	4 d	Brachydanio rerio (zebra-fish)	Regulation (EC) No. 440/2008, Annex, C.1
	Algae toxicity	NOEC >= 22 mg/l	3 d	Pseudokirchnerella subcapitata	OECD 201
	Crustacea toxicity	NOEC >= 75 mg/l	2 d	Daphnia magna (Big water flea)	OECD 202
	Acute bacteria toxicity	(> 100 mg/l)	3 h	Activated sludge	OECD 209

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
78-10-4	ethyl silicate, tetraethyl silicate			
	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A	98 %	28	IUCLID
	Readily biodegradable (according to OECD criteria).			

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.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
78-10-4	ethyl silicate, tetraethyl silicate	3,18

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 7 of 9

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

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

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



Classification code:	F1
Limited quantity:	5 L
Transport category:	3
Hazard No:	30
Tunnel restriction code:	D/E

Other applicable information (land transport)

E1

Inland waterways transport (ADN)

<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



Classification code:	F1
Limited quantity:	5 L

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 8 of 9

Other applicable information (inland waterways transport)

E1

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)

E1

Air transport (ICAO)

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



Limited quantity Passenger: 10 L
 IATA-packing instructions - Passenger: 355
 IATA-max. quantity - Passenger: 60 L
 IATA-packing instructions - Cargo: 366
 IATA-max. quantity - Cargo: 220 L

Other applicable information (air transport)

E1

Passenger-LQ: Y344

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**

2004/42/EC (VOC): 60 % (624 g/l)

National regulatory information

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Catalyst (hardener) T 40

Print date: 04.11.2016

Product code: B415120-GHS-2013

Page 9 of 9

Employment restrictions: Observe restrictions to employment for juvenils 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.

Water contaminating class (D): 3 - highly water contaminating

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.)