

## Safety Data Sheet

according to the Preparation of Safety data Sheets for  
Hazardous Chemicals Code of Practice

Revision date: 23.01.2020

**VITAFOL H Hardener**  
**Product Code 059**

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

#### 1.1. Product identifier

VITAFOL H Hardener

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

##### Use of the substance/mixture

Use as laboratory reagent

#### 1.3. Details of the supplier of the safety data sheet

##### Manufacturer

Company name:	VITA Zahnfabrik H.Rauter GmbH & Co.KG	
Post-office box:	1338	
	79704 Bad Säckingen	
Telephone:	+49(0)7761-562-0	Telefax: +49(0)7761-562-299
e-mail:	info@vita-zahnfabrik.com	
Internet:	www.vita-zahnfabrik.com	

##### Supplier

Company name:	Company Name	
Street:	Street	
Place:	79704 Town	
Telephone:	Phone	Telefax: Telefax
e-mail:	email	
Contact person:	Contact person	
Internet:	url	

#### 1.4. Emergency telephone number:

+49-(0)761-19240

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### UN-GHS (Rev.3)

Hazard categories:

Flammable liquid: Flam. Liq. 3

Acute toxicity: Acute Tox. 4

Serious eye damage/eye irritation: Eye Irrit. 2

Reproductive toxicity: Repr. 2

Specific target organ toxicity - single exposure: STOT SE 3

Specific target organ toxicity - repeated exposure: STOT RE 1

Hazard Statements:

Flammable liquid and vapour.

Harmful if inhaled.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause respiratory irritation.

Causes damage to organs through prolonged or repeated exposure.

#### 2.2. Label elements

##### UN-GHS (Rev.3)

##### Hazard components for labelling

tetraethyl silicate; ethyl silicate

Silicic acid (H<sub>4</sub>SiO<sub>4</sub>), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane

Bis(neodecanoyloxy)dioctylstannane

**Signal word:** Danger

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#### Pictograms:



#### Hazard statements

H226	Flammable liquid and vapour.
H332	Harmful if inhaled.
H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.

#### Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P233	Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of waste according to applicable legislation.

#### 2.3. Other hazards

No information available.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

##### Hazardous components

CAS No	Chemical name	Quantity
78-10-4	tetraethyl silicate; ethyl silicate	80 - < 85 %
93925-43-0	Silicic acid (H <sub>4</sub> SiO <sub>4</sub> ), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane	10 - < 15 %
68299-15-0	Bis(neodecanoyloxy)dioctylstannane	1 - < 5 %

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#### Further Information

Silicic acid (H<sub>4</sub>SiO<sub>4</sub>), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane: H361d

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

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

#### After inhalation

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. If experiencing respiratory symptoms: Call a doctor.

#### After contact with skin

Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.

#### 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. Remove contact lenses, if present and easy to do. Continue rinsing.

#### After ingestion

Rinse mouth immediately and drink plenty of water. Observe risk of aspiration if vomiting occurs. Never give anything by mouth to an unconscious person or a person with cramps. Call a doctor.

### 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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>), Foam, Extinguishing powder.

#### Unsuitable extinguishing media

Water.

### 5.2. Special hazards arising from the substance or mixture

Flammable. Vapours can form explosive mixtures with air.

### 5.3. Advice for firefighters

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

#### 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. Remove persons to safety.

### 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.

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#### 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

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Do not breathe dust/fume/gas/mist/vapours/spray. Use personal protection equipment.

##### 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.

##### Hints on joint storage

Do not store together with: Oxidising agent. Pyrophoric or self-heating substances.

#### 7.3. Specific end use(s)

Use as laboratory reagent

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### Additional advice on limit values

Value:  
tetraethyl silicate; ethyl silicate  
10 ppm (85 mg/m<sup>3</sup>) TWA

Tin, organic compounds (as Sn)  
0,1 ppm (0,2 mg/m<sup>3</sup>) STEL

Source: Workplace exposure standards for airborne contaminants, Publication date: 16 December 2019

#### 8.2. Exposure controls



##### Appropriate engineering controls

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

##### 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. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothes.

##### Eye/face protection

Suitable eye protection: goggles.

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#### Hand protection

Wear suitable gloves.  
Suitable material: NBR (Nitrile rubber)  
Breakthrough time (maximum wearing time): 30 min

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.

#### Skin protection

Wear suitable protective clothing.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection. Technical ventilation of workplace. Provide adequate ventilation as well as local exhaustion at critical locations.

#### Environmental exposure controls

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

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

#### Changes in the physical state

Melting point:	not determined
Initial boiling point and boiling range:	166 °C
Flash point:	37 °C

#### Flammability

Solid:	not applicable
Gas:	not applicable

#### Explosive properties

Vapours can form explosive mixtures with air.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Ignition temperature:	not determined

#### Auto-ignition temperature

Solid:	not applicable
Gas:	not applicable

Decomposition temperature:	not determined
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#### Oxidizing properties

Not oxidising.

Vapour pressure: (at 50 °C)	<=1100 hPa
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Density:	not determined
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Water solubility:	No
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#### Solubility in other solvents

not determined

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Partition coefficient:	not determined
Viscosity / dynamic:	not determined
Viscosity / kinematic:	not determined
Vapour density:	not determined
Evaporation rate:	not determined

#### 9.2. Other information

Odour threshold: not determined

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Flammable.

#### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

#### 10.3. Possibility of hazardous reactions

Vapours can form explosive mixtures with air.

#### 10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

#### 10.5. Incompatible materials

Do not store together with: Oxidising agent. Pyrophoric or self-heating substances.

#### 10.6. Hazardous decomposition products

No known hazardous decomposition products.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Acute toxicity

Harmful if inhaled.

##### ATEmix calculated

ATE (oral) 4166,7 mg/kg; ATE (inhalation vapour) 13,10 mg/l; ATE (inhalation aerosol) 1,786 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
78-10-4	tetraethyl silicate; ethyl silicate				
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			
93925-43-0	Silicic acid (H4SiO4), tetraethyl ester, reaction products with bis(acetyloxy)diocetylstannane				
	oral	ATE 500 mg/kg			

##### Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

##### Sensitising effects

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

##### Carcinogenic/mutagenic/toxic effects for reproduction

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Suspected of damaging fertility or the unborn child. (Silicic acid (H<sub>4</sub>SiO<sub>4</sub>), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

#### STOT-single exposure

May cause respiratory irritation. (tetraethyl silicate; ethyl silicate)

#### STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure. (Silicic acid (H<sub>4</sub>SiO<sub>4</sub>), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane)

#### Aspiration hazard

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

## SECTION 12: Ecological information

### 12.1. Toxicity

The product is not: Ecotoxic.

### 12.2. Persistence and degradability

The product has not been tested.

### 12.3. Bioaccumulative potential

The product has not been tested.

### 12.4. Mobility in soil

The product has not been tested.

### 12.5. 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

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 (ADG)

<b>14.1. UN number:</b>	UN 1292
<b>14.2. UN proper shipping name:</b>	TETRAETHYL SILICATE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	III
Limited quantity:	5 L
Excepted quantity:	E1

#### Other applicable information (land transport)

HAZCHEM: 3Y

### Marine transport (IMDG)

<b>14.1. UN number:</b>	UN 1292
<b>14.2. UN proper shipping name:</b>	TETRAETHYL SILICATE

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**14.3. Transport hazard class(es):** 3

**14.4. Packing group:** III

Hazard label: 3



Special Provisions: -  
Limited quantity: 5 L  
Excepted quantity: E1  
EmS: F-E, S-D

#### 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



Limited quantity Passenger: 10 L  
Passenger LQ: Y344  
Excepted quantity: E1  
IATA-packing instructions - Passenger: 355  
IATA-max. quantity - Passenger: 60 L  
IATA-packing instructions - Cargo: 366  
IATA-max. quantity - Cargo: 220 L

#### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

#### 14.6. Special precautions for user

Warning: Combustible liquid.

#### 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

##### National regulatory information

##### Additional information

AICS

tetraethyl silicate; ethyl silicate: Yes.

Silicic acid (H<sub>4</sub>SiO<sub>4</sub>), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane: Yes.

Bis(neodecanoyloxy)dioctylstannane: Yes.

SUSMP

tetraethyl silicate; ethyl silicate: No

Silicic acid (H<sub>4</sub>SiO<sub>4</sub>), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane: No

Bis(neodecanoyloxy)dioctylstannane: No

### SECTION 16: Other information



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#### Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists  
ADG: Australian Dangerous Goods  
AICS: Australian Inventory of Chemical Substances  
ICAO: International Civil Aviation Organization  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS: Chemical Abstracts Service  
STEL: Short-term exposure limit  
TWA: time-weighted average  
TI: Technical Instructions  
DGR: Dangerous Goods Regulations  
UN: United Nations  
ATE: Acute toxicity estimate  
LC50: Lethal concentration, 50%  
LD50: Lethal dose, 50%  
LL50: Lethal loading, 50%  
EL50: Effect loading, 50%  
EC50: Effective Concentration 50%  
ErC50: Effective Concentration 50%, growth rate  
NOEC: No Observed Effect Concentration  
BCF: Bio-concentration factor  
MARPOL: International Convention for the Prevention of Marine Pollution from Ships  
IBC: Intermediate Bulk Container  
VOC: Volatile Organic Compounds  
SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons

#### 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.

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