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
e-mail: info@vita-zahnfabrik.com
Internet: www.vita-zahnfabrik.com

Supplier
Company name: Company Name
Street: Street
Place: 79704 Town
Telephone: Phone
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 (H4SiO4), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane
Bis(neodecanoyloxy)dioctylstannane

Signal word: Danger
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

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-10-4</td>
<td>tetraethyl silicate; ethyl silicate</td>
<td>80 - &lt; 85 %</td>
</tr>
<tr>
<td>93925-43-0</td>
<td>Silicic acid (H4SiO4), tetraethyl ester, reaction products with bis(acetoxy)dioctylstannane</td>
<td>10 - &lt; 15 %</td>
</tr>
<tr>
<td>68299-15-0</td>
<td>Bis(neodecanoyloxy)dioctylstannane</td>
<td>1 - &lt; 5 %</td>
</tr>
</tbody>
</table>
Further Information
Silicic acid (H4SiO4), 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 (CO2), 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.
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

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: 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/m³) TWA
Tin, organic compounds (as Sn)
0,1 ppm (0,2 mg/m³) 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 exhaustion 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.
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

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour:</td>
<td>light red</td>
</tr>
<tr>
<td>Odour:</td>
<td>characteristic</td>
</tr>
<tr>
<td>pH-Value:</td>
<td>not determined</td>
</tr>
</tbody>
</table>

Changes in the physical state
Melting point: not determined
Initial boiling point and boiling range:
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

Oxidizing properties
Not oxidising.
Vapour pressure:
(at 50 °C) <=1100 hPa
Density: not determined
Water solubility: No

Solubility in other solvents
not determined
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

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-10-4</td>
<td>tetraethyl silicate; ethyl silicate</td>
<td>inhalation vapour</td>
<td>ATE</td>
<td>11 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation aerosol</td>
<td>ATE</td>
<td>1.5 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td>93925-43-0</td>
<td>Silicic acid (H4SiO4), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane</td>
<td>oral</td>
<td>ATE</td>
<td>500 mg/kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
Suspected of damaging fertility or the unborn child. (Silicic acid (H₄SiO₄), 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 (H₄SiO₄), 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)

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
    Limited quantity: 5 L
    Excepted quantity: E1

 Other applicable information (land transport)
HAZCHEM: 3Y

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
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 (H4SiO4), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane: Yes.
Bis(neodecanoyloxy)dioctylstannane: Yes.

SUSMP
tetraethyl silicate; ethyl silicate: No
Silicic acid (H4SiO4), tetraethyl ester, reaction products with bis(acetyloxy)dioctylstannane: No
Bis(neodecanoyloxy)dioctylstannane: No

SECTION 16: Other information
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.

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