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

1.1. Product identifier

Rhenofol-Quellschweißmittel

REACH Registration Number: 01-2119444314-46-XXXX
CAS No: 109-99-9
Index No: 603-025-00-0
EC No: 203-726-8

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

Use of the substance/mixture
chemical sealing, Solvent

Uses advised against
Only use for the intended purpose.
The product is intended for professional use.

1.3. Details of the supplier of the safety data sheet

Company name: FDT Flachdach Technologie GmbH & Co. KG
Street: Eisenbahnstraße 6-8
Place: D-68199 Mannheim
Telephone: +49 (621) 8504100 Telefax: +49 (621) 8504200
e-mail: kundenservice@fdt.de
Contact person: Marco Anderer Telephone: +49 (621) 8504563
Internet: http://www.fdt.de
Responsible Department: Arbeitssicherheit und Umweltschutz

1.4. Emergency telephone number:

Poison Control Center (Mayence, GER): +49 (0)6131 - 19240 (24h - de, en)
Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008
Hazard categories:
Flammable liquid: Flam. Liq. 2
Carcinogenicity: Carc. 2
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 - single exposure: STOT SE 3
Hazard Statements:
Highly flammable liquid and vapour.
Suspected of causing cancer.
Harmful if swallowed.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.

2.2. Label elements

Regulation (EC) No. 1272/2008
Hazard components for labelling
tetrahydrofuran
Rhenofol-Quellschweißmittel

Signal word: Danger

Pictograms:

Hazard statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.

Special labelling of certain mixtures

EUH019 May form explosive peroxides.

2.3. Other hazards

This substance does not meet the criteria for classification as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: C4H8O
Molecular weight: 72,11 g/mol

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC No</td>
<td>Index No</td>
<td>REACH No</td>
</tr>
<tr>
<td>109-99-9</td>
<td>tetrahydrofuran</td>
<td></td>
</tr>
<tr>
<td>203-726-8</td>
<td>603-025-00-0</td>
<td>01-211944314-46-XXXX</td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of troubles or persistent symptoms, consult an doctor/physician.
Remove persons from danger area and lie them down. Never orally infuse something to an unconscious person. No special first aid measures necessary. A vomiting, supine person must be brought into recovery position.

**After inhalation**
- Provide fresh air. In case of respiratory tract irritation, consult a physician.
- In case of irregular breathing or respiratory arrest, perform artificial respiration.

**After contact with skin**
- After contact with skin, wash immediately with plenty of water and soap. Change contaminated clothing. In case of skin irritation, consult a physician.

**After contact with eyes**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

**After ingestion**
- Rinse mouth, spit liquid again. Do NOT induce vomiting. Have victim drink large quantities of water, with active charcoal if possible. Call a physician immediately.

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

- Following eye contact: Causes serious eye irritation.
- Following inhalation: May cause respiratory irritation. May cause drowsiness or dizziness.

### 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). Extinguishing powder. Water spray. Fight larger fires with water spray jet or alcohol-resistant foam.

- **Unsuitable extinguishing media**
  - High power water jet.

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

- Vapours may form explosive mixtures with air. Vapours are heavier than air and will spread at floor level.
- Possible ignition over greater distances. Thermal decomposition can lead to harmful gases and vapours. May form explosive peroxides.

### 5.3. Advice for firefighters

- Co-ordinate fire-fighting measures to the fire surroundings. Wear a self-contained breathing apparatus and chemical protective clothing.

### Additional information

- Do not allow to enter into surface water or drains. Use water spray jet to protect personnel and to cool endangered containers.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

- Provide adequate ventilation. Keep away from sources of ignition - No smoking. Wear breathing apparatus if exposed to vapours/dusts/aerosols. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.

### 6.2. Environmental precautions

- Do not allow to enter into surface water or drains.
- In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
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 precautions: refer to section 8.
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Provide adequate ventilation as well as local exhaust at critical locations. Handle and open container with care.

Advice on protection against fire and explosion
Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Store only in original container. Keep container tightly closed in a cool, well-ventilated place. Protect against direct sunlight.

7.3. Specific end use(s)
chemical sealing, Solvent

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-99-9</td>
<td>Tetrahydrofuran</td>
<td>50</td>
<td>150</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>300</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Protective and hygiene measures
Change contaminated clothing. Wash hands before breaks and after work. When using do not eat or drink.
Avoid skin, eye and clothing contact. After contact with skin, wash immediately with plenty of water and soap or a suitable cleaning agent.

Eye/face protection
Tightly fitting safety glasses with side shields.

Hand protection
Protect skin by using skin protective cream. Wear suitable gloves.
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.
Suitable material: Butyl rubber.

Skin protection
Full cover clothing covering arms and legs.
Respiratory protection
Use protective filter mask in case of short-term and low exposure; in case of intense or longer exposure, use respiratory protection device operating independently from circulating air. Respirator with combination filter for vapour and particles. Filter type A-P2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
- Physical state: liquid
- Colour: colourless
- Odour: like: Ether

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH-Value</td>
<td>not determined</td>
</tr>
</tbody>
</table>

Changes in the physical state
- Melting point: -108,5 °C
- Initial boiling point and boiling range: 65,5 °C
- Flash point: -20 °C

Flammability
- Gas: not determined

Explosive properties
- The product is not explosive, however, formation of explosive mixtures are possible.
- Lower explosion limits: 1,5 vol. %
- Upper explosion limits: 12,0 vol. %
- Ignition temperature: 212 °C DIN 51794

Auto-ignition temperature
- Gas: not determined

Decomposition temperature: not determined

Oxidizing properties
- not determined

Vapour pressure: 217 hPa (at 20 °C)

Density (at 20 °C): 0,8892 g/cm³

Water solubility: completely miscible

Partition coefficient: not determined

Viscosity / dynamic:
- (at 20 °C) not determined

Viscosity / kinematic: not determined

Vapour density: not determined

Solvent content: 100,00 %

9.2. Other information
- No further information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
- No dangerous reactivity under regular conditions.

10.2. Chemical stability
The product is stable under regular conditions.

10.3. Possibility of hazardous reactions
Avoid contact with oxidizing agents.
In the presence of oxygen and light: May form explosive peroxides.

10.4. Conditions to avoid
No information available.

10.5. Incompatible materials
Oxygen. Oxidizing agents, strong.

10.6. Hazardous decomposition products
Thermal decomposition can lead to harmful gases and vapours.
In case of fire: It may produce hazardous fumes like carbon monoxide or carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity
Harmful if swallowed.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>tetrahydrofuran</td>
<td>oral</td>
<td>LD50</td>
<td>3000 mg/kg Rat</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 causing cancer. (tetrahydrofuran)
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure
May cause respiratory irritation. (tetrahydrofuran)
May cause drowsiness or dizziness. (tetrahydrofuran)

STOT-repeated exposure
Based on available data, the classification criteria are not met.
Prolonged/repetitive skin contact may cause skin defattening or dermatitis.

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

Specific effects in experiment on an animal
In a two-year study, the application of tetrahydrofuran in high doses led to tumors in the liver of female mice and the kidney of male rats. The significance of this findings for the human health is not clear.

Further information
The product is skin resorptive.

SECTION 12: Ecological information

12.1. Toxicity

Revision No: 1.03 - Replaces version: 1.02 GB - EN Revision date: 26.08.2016
Rhenofol-Quellschweißmittel

According to Regulation (EC) No 1907/2006

Product code: RCSO-FDT-020

CAS No | Chemical name | Aquatic toxicity | Dose | [h] [d] | Species | Source
--- | --- | --- | --- | --- | --- | ---
109-99-9 | tetrahydrofuran | Acute fish toxicity | LC50 | 2820 mg/l | 96 h | Leuciscus idus (golden orfe)
Acute crustacea toxicity | EC50 | 5930 mg/l | 48 h | Daphnia magna

12.2. Persistence and degradability
Product is biodegradable.

12.3. Bioaccumulative potential
No indication of bioaccumulation potential.

12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
This substance does not meet the criteria for classification as PBT or vPvB.

12.6. Other adverse effects
No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal
Disposal according to official regulations. Do not dispose with household waste.
Consult the local waste disposal expert about waste disposal. According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Waste disposal number of contaminated packaging
150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances
Classified as hazardous waste.

Contaminated packaging
Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: UN 2056
14.2. UN proper shipping name: TETRAHYDROFURAN
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label:

Classification code: F1
Limited quantity: 1 L
Excepted quantity: E2
Transport category: 2
### Inland waterways transport (ADN)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 2056</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
<td>TETRAHYDROFURAN</td>
</tr>
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<td>3</td>
</tr>
<tr>
<td>14.4. Packing group:</td>
<td>II</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>3</td>
</tr>
</tbody>
</table>

**Classification code:** F1  
**Limited quantity:** 1 L  
**Excepted quantity:** E2

### Marine transport (IMDG)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 2056</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
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</tr>
<tr>
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<td>II</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>3</td>
</tr>
</tbody>
</table>

**Marine pollutant:** Nein  
**Special Provisions:** -  
**Limited quantity:** 1 L  
**Excepted quantity:** E2  
**EmS:** F-E, S-D

### Air transport (ICAO)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 2056</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
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<tr>
<td>14.4. Packing group:</td>
<td>II</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>3</td>
</tr>
</tbody>
</table>

**Limited quantity Passenger:** 1 L  
**Passenger LQ:** Y341  
**Excepted quantity:** E2  
**IATA-packing instructions - Passenger:** 353  
**IATA-max. quantity - Passenger:** 5 L  
**IATA-packing instructions - Cargo:** 364  
**IATA-max. quantity - Cargo:** 60 L

### 14.5. Environmental hazards

**ENVIRONMENTALLY HAZARDOUS:** no
14.6. Special precautions for user
No special precautions known.

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): 100%

Additional information
Regulation (EC) No. 1005/2009 on substances that lead to the depletion of the ozone layer: not applicable
Regulation (EC) No. 648/2004 (Detergents regulation): not applicable
REGULATION (EC) No. 650/2004 on persistent organic pollutants: not applicable
REGULATION (EC) No 689/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the export and import of dangerous chemicals: This mix contains no chemicals that are subject to the export notification procedures (annex 1).
This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: none
This mixture contains the following substances of very high concern (SVHC) which are subject to authorisation according to Annex XIV of REACH: none

National regulatory information
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. Observe employment restrictions for women of child-bearing age.

Water contaminating class (D): 1 - slightly water contaminating

15.2. Chemical safety assessment
For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Changes
This data sheet contains changes from the previous version in section(s): 1,2,3,5,6,7,8,10,11,15,16.
Version 1.00 - Creation - 02.06.2014
Version 1.01 - Classification/Labeling according Regulation No.1272/2008 (GHS/CLP) and general revision - 21.07.2015
Version 1.03 - General update - 26.08.2016

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)
CAS: Chemical Abstracts Service
EC: Effective Concentration
EG: European Community (Europäische Gemeinschaft)
EN: European Norm
IATA: International Air Transport Association
IBC Code: International Code for the Construction and Equipment of ships carrying Dangerous Chemicals in Bulk
ICAO: International Civil Aviation Organization
Rhenofol-Quellschweißmittel

Safety Data Sheet

IMDG: International Maritime Code for Dangerous Goods
CLP: Classification, Labeling, Packaging
IUCLID: International Uniform Chemical Information Database
LC: Lethal concentration
LD: Lethal dose
log Kow: Octanol/water partition coefficient
MARPOL: Maritime Pollution Convention = Convention for the Prevention of Maritime Pollution from Ships
OECD: Organisation for Economic Co-operation and Development
PBT: Persistent, bio-cumulative, toxic
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail
TRGS: Technische Regeln für Gefahrstoffe
VOC: Volatile Organic Compounds
vPvB: very persistent and very bio-cumulative
VwVwS: Administrative Regulation for Water Pollutants
WGK: German Water Hazard Class
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
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration
TLV: Threshold Limiting Value
STOT: Specific Target Organ Toxicity

Relevant H and EUH statements (number and full text)

H225  Highly flammable liquid and vapour.
H302  Harmful if swallowed.
H319  Causes serious eye irritation.
H335  May cause respiratory irritation.
H336  May cause drowsiness or dizziness.
H351  Suspected of causing cancer.
EUH019 May form explosive peroxides.

Further Information

The information given in this safety data sheet is to describe the product's safety regulations. It is not for guaranteeing certain characteristics and is based on today's knowledge. The safety data sheet was generated upon information of pre-suppliers by:

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www.reacheck.eu