

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Rhenofol-Quellschweißmittel (TFH)

Revision date: 21.01.2021

Product code: FDT-020

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

### 1.1. Product identifier

Rhenofol-Quellschweißmittel (TFH)

Substance name: tetrahydrofuran

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

Street: Eisenbahnstraße 6-8

Place: D-68199 Mannheim

Telephone: +49 (621) 8504100      Telefax: +49 (621) 8504200

e-mail: kundenservice@fdt.de

Contact person: Fachkraft für Arbeitssicherheit      Telephone: +49 (621) 8504303

e-mail: gefahrstoffe@fdt.de

Internet: <http://www.fdt.de>

Responsible Department: Arbeitssicherheit und Umweltschutz

### 1.4. Emergency telephone

#### number:

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

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**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 action to prevent static discharges.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing 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: C<sub>4</sub>H<sub>8</sub>O  
Molecular weight: 72,11 g/mol

#### Hazardous components

CAS No	Chemical name	Quantity
	EC No	
	Index No	
	REACH No	
	GHS Classification	
109-99-9	tetrahydrofuran	100 %
	203-726-8	603-025-00-0
	01-2119444314-46-XXXX	
	Flam. Liq. 2, Carc. 2, Acute Tox. 4, Eye Irrit. 2, STOT SE 3, STOT SE 3; H225 H351 H302 H319 H335 H336 EUH019	

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

#### Specific concentration limits and M-factors

CAS No	EC No	Chemical name	Quantity
		Specific concentration limits and M-factors	
109-99-9	203-726-8	tetrahydrofuran	100 %
		Eye Irrit. 2; H319: >= 25 - 100 STOT SE 3; H335: >= 25 - 100	

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## 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.  
After Ingestion: Harmful if swallowed.  
Headache. Drowsiness. Dizziness.  
Suspected of causing cancer.

### 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>). 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

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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)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
109-99-9	Tetrahydrofuran	50	150		TWA (8 h)	WEL
		100	300		STEL (15 min)	WEL

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#### DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
109-99-9	tetrahydrofuran		
Consumer DNEL, long-term	oral	systemic	1,5 mg/kg bw/day
Worker DNEL, long-term	dermal	systemic	12,6 mg/kg bw/day
Consumer DNEL, long-term	dermal	systemic	1,5 mg/kg bw/day
Worker DNEL, acute	inhalation	systemic	96 mg/m <sup>3</sup>
Worker DNEL, acute	inhalation	local	300 mg/m <sup>3</sup>
Worker DNEL, long-term	inhalation	systemic	72,4 mg/m <sup>3</sup>
Worker DNEL, long-term	inhalation	local	150 mg/m <sup>3</sup>
Consumer DNEL, acute	inhalation	systemic	52 mg/m <sup>3</sup>
Consumer DNEL, acute	inhalation	local	150 mg/m <sup>3</sup>
Consumer DNEL, long-term	inhalation	systemic	13 mg/m <sup>3</sup>
Consumer DNEL, long-term	inhalation	local	75 mg/m <sup>3</sup>

#### PNEC values

CAS No	Substance	
Environmental compartment	Value	
109-99-9	tetrahydrofuran	
Freshwater	4,32 mg/l	
Marine water	0,432 mg/l	
Freshwater sediment	23,3 mg/kg	
Marine sediment	2,33 mg/kg	
Micro-organisms in sewage treatment plants (STP)	4,6 mg/l	
Soil	2,13 mg/kg	

#### 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.  
Thickness of glove material::  $\geq 0,7$  mm

##### 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.

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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

#### Test method

pH-Value: not determined

#### 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/cm<sup>3</sup>

Water solubility: completely miscible

Partition coefficient: not determined

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

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.

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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.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
109-99-9	tetrahydrofuran				
	oral	LD50 mg/kg	1650	Rat	
	dermal	LD50 mg/kg	>2000	Rat	

#### **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 defatting 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 tetra hydrofuran 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**

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
109-99-9	tetrahydrofuran					
	Acute fish toxicity	LC50 mg/l	2160	96 h	Pimephales promelas (fathead minnow)	
	Acute crustacea toxicity	EC50 mg/l	5930	48 h	Daphnia magna	
	Algae toxicity	NOEC mg/l	3700	8 d	green alga	

#### 12.2. Persistence and degradability

Product is biodegradable.

#### 12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

#### Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
109-99-9	tetrahydrofuran	0,45

#### BCF

CAS No	Chemical name	BCF	Species	Source
109-99-9	tetrahydrofuran	3,16		EPIWIN BCFBAF V.3.00

#### 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

##### Disposal recommendations

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.

##### List of Wastes Code - 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; 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)

<b>14.1. UN number:</b>	UN 2056
<b>14.2. UN proper shipping name:</b>	TETRAHYDROFURAN
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II



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Hazard label: 3



Classification code: F1  
 Limited quantity: 1 L  
 Excepted quantity: E2  
 Transport category: 2  
 Hazard No: 33  
 Tunnel restriction code: D/E

#### Inland waterways transport (ADN)

**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: 3



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

#### Marine transport (IMDG)

**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: 3



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

#### Air transport (ICAO-TI/IATA-DGR)

**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: 3



Limited quantity Passenger: 1 L  
 Passenger LQ: Y341  
 Excepted quantity: E2

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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

Restrictions on use (REACH, annex XVII):

Entry 3

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 850/2004 on persistent organic pollutants: not applicable

Regulation (EC) No 649/2012 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 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. Observe employment restrictions for women of child-bearing age.

Water hazard class (D): 1 - slightly hazardous to water

#### 15.2. Chemical safety assessment

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

### SECTION 16: Other information

#### Changes

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 1,02 - General update - 25.04.2016

Version 1,03 - General update - 26.08.2016

Version 1,04 - General update - 21.01.2016

#### 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)

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BlmSchV (Fed.Imm.Prot.Act): Directive on the Implementation of the Federal Immission Protection Act  
CAS: Chemical Abstracts Service  
DIN: Norm of the Deutsche Institut für Normung (German Institute for Standardization)  
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  
IMDG: International Maritime Code for Dangerous Goods  
ISO: Norm of the International Standards Organization  
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  
UN: United Nations  
VOC: Volatile Organic Compounds  
vPvB: very persistent and very bio-cumulative  
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  
AwSV: Ordinance on Installations for Handling Substances Hazardous to Water

#### 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:

asseso AG, Ottostraße 1, 63741, Aschaffenburg, Germany  
Phone: +49 (0)6021 - 1 50 86-0, Fax: +49 (0)6021 - 1 50 86-77, E-Mail: eu-sds@asseso.eu, www.asseso.eu