

# SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH)  
Article 31, Annex II as amended.



ZF Aftermarket

## ZF ECOFLUID X

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

#### 1.1 Product identifier

**Product name:** ZF ECOFLUID X

**Product number:** 0681.000.411  
0681.000.412

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

**Identified uses:** Lubricant

**Uses advised against:** No uses advised against identified.

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

**Manufacturer / Supplier** ZF Friedrichshafen AG  
Löwentaler Straße 20  
D-88046 Friedrichshafen  
[www.zf.com /contact](http://www.zf.com/contact)

**Telephone:** +49 7541 77 0  
**Fax:** +49 7541 77 90 8000

#### Contact for request of safety data sheets

**E-mail:** [msds.zf-aftermarket@zf.com](mailto:msds.zf-aftermarket@zf.com)

#### 1.4 Emergency telephone number:

**24/7h Emergency telephone number:**  
+49(0) 89 19 240 Information in German and English

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

The product has not been classified as hazardous, but needs to be labelled according to regulation (EU) 1272/2008 (CLP).

**Classification according to Regulation (EC) No 1272/2008 as amended.**

#### Hazard summary

**Physical Hazards:** No data available.

#### 2.2 Label Elements

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EUH208: Contains dithiophosphoric acid derivative. May produce an allergic reaction.

EUH210: Safety data sheet available on request.

### 2.3 Information on other hazards

By handling of mineral oil products and chemical products no particular hazard is known when normal precautions (item 7) and personal protective equipment (item 8) are kept. The product may not be released into the environment without control.

### Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### General information:

Mixture containing severely refined base oils and additives.

Chemical name	Identifier	Concentration *	REACH Registration No.	Notes
organic Polysulphide	EINECS: 273-103-3	1,00% - <5,00%	01-2119540515-43	
dithiophosphoric acid derivative	EC: 931-384-6	1,00% - <2,50%	01-2119493620-38	
Magnesium metaborate	EINECS: 237-235-5	0,10% - <1,00%	01-2120769073-53	

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

#### Classification

Chemical name	Identifier	Classification
organic Polysulphide	EINECS: 273-103-3	CLP: Skin Sens. 1B;H317, Aquatic Chronic 3;H412
dithiophosphoric acid derivative	EC: 931-384-6	CLP: Acute Tox. 4;H302, Skin Sens. 1B;H317, Eye Irrit. 2;H319, Aquatic Chronic 2;H411
Magnesium metaborate	EINECS: 237-235-5	CLP: Skin Sens. 1B;H317

CLP: Regulation No. 1272/2008.

#### specific concentration limit

Chemical name	Identifier	specific concentration limit	Hazard class	Hazard Category	Hazard statements
organic Polysulphide	EINECS: 273-103-3	> 46 %	Skin sensitizer	1B	H317
dithiophosphoric acid derivative	EC: 931-384-6	>= 50 % >= 9,39 %	Serious eye irritation Skin sensitizer	2 1B	H319 H317
Magnesium metaborate	EINECS: 237-235-5	> 15 %	Skin sensitizer	1B	H317

For the wording of the listed hazard statements refer to section 16.

Please note that the mineral oils and petroleum distillates used in our products are severely refined and have a DMSO extract < 3% as measured by method IP 346 and are not classified as carcinogenic according to Nota L/ Nota N of Annex VI of Regulation EC 1272/2008."

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### SECTION 4: First aid measures

**General:** Instantly remove any clothing soiled by the product.

#### 4.1 Description of first aid measures

**Inhalation:** Supply fresh air; consult doctor in case of symptoms.

**Eye contact:** Promptly wash eyes with plenty of water while lifting the eye lids.

**Skin Contact:** Wash with soap and water.

**Ingestion:** Rinse mouth thoroughly.

**4.2 Most important symptoms and effects, both acute and delayed:** May cause skin and eye irritation.

**4.3 Indication of any immediate medical attention and special treatment needed** Get medical attention if symptoms occur.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

**Suitable extinguishing media:** CO<sub>2</sub>, fire extinguishing powder or fog like water spraying. Extinguish larger fires with alcohol resistant foam or spray water with suitable surfactant added

**Unsuitable extinguishing media:** Water with a full water jet.

**5.2 Special hazards arising from the substance or mixture:** During fire, gases hazardous to health may be formed.

#### 5.3 Advice for firefighters

**Special fire-fighting procedures:** Move container from fire area if it can be done without risk. Dispose of fire debris and contaminated fire fighting water in accordance with official regulations. Collect contaminated fire fighting water separately. It must not enter drains.

**Special protective equipment for fire-fighters:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### SECTION 6: Accidental release measures

**6.1 Personal precautions, protective equipment and emergency procedures:** In case of spills, beware of slippery floors and surfaces.

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- 6.2 Environmental Precautions:** Prevent from spreading (e.g. by binding or oil barriers). Avoid release to the environment. Environmental manager must be informed of all major spillages. Prevent further leakage or spillage if safe to do so. Do not allow to enter drainage system, surface or ground water.
- 6.3 Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acidbinders, universal binders, sawdust). Dispose of the material collected according to regulations. Stop the flow of material, if this is without risk.
- 6.4 Reference to other sections:** See Section 8 of the SDS for Personal Protective Equipment. See Section 7 for information on safe handling See Section 13 for information on disposal.

### SECTION 7: Handling and storage:

- 7.1 Precautions for safe handling:** Prevent formation of aerosols. Do not eat, drink or smoke when working with the product. Take usual precautions when handling mineral oil products or chemical products. Observe good industrial hygiene practices. Provide adequate ventilation.
- 7.2 Conditions for safe storage, including any incompatibilities:** Local regulations concerning handling and storage of waterpolluting products have to be followed. Do not heat up to temperatures close to the flash point.
- 7.3 Specific end use(s):** No data available.
- Storage Class:** 10, Combustible liquids

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control Parameters

##### Occupational Exposure Limits

None of the components have assigned exposure limits.

#### 8.2 Exposure controls

##### Appropriate engineering controls:

Provide adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

##### Individual protection measures, such as personal protective equipment

##### General information:

Wash hands before breaks and after work. Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. The usual precautionary measures should be adhered to in handling the chemicals or the mineral oil products.

##### Eye/face protection:

Avoid contact with skin and eyes. Goggles/face shield are recommended. If risk of splashing, wear safety goggles or face shield.

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### Skin protection

#### Hand Protection:

Material: Nitrile butyl rubber (NBR).  
Min. Breakthrough time:  $\geq 480$  min  
Recommended thickness of the material:  $\geq 0,38$  mm

Avoid long-term and repeated skin contact. Suitable gloves can be recommended by the glove supplier. Use skin protection cream for preventive skin protection. Protective gloves, where permitted in acc. to safety directions. The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

#### Other:

Do not carry cleaning cloths impregnated with the product in trouser pockets. Wear suitable protective clothing.

#### Respiratory Protection:

Ensure good ventilation/exhaustion at the workplace. Avoid breathing vapour/ aerosol.

#### Thermal hazards:

Not known.

#### Hygiene measures:

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

#### Environmental Controls:

No data available.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state:	liquid
Form:	liquid
Color:	Brown
Odor:	Characteristic
pH:	substance/mixture is non-soluble (in water)
Freezing point:	not determined
Boiling Point:	not determined
Flash Point:	200 °C
Evaporation Rate:	Not applicable for mixtures
Flammability (solid, gas):	not determined
Explosion Limit - Upper (%):	Not applicable for mixtures
Explosion Limit - Lower (%):	Not applicable for mixtures
Vapor pressure:	Not applicable for mixtures
Relative vapor density:	Not applicable for mixtures
Density:	0,89 g/ml (15,00 °C)
Solubility(ies)	
Solubility in Water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable for mixtures
Auto-ignition temperature:	not determined

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<b>Decomposition Temperature:</b>	not determined
<b>Kinematic viscosity:</b>	142 mm <sup>2</sup> /s (40 °C)
<b>Explosive properties:</b>	Value not relevant for classification
<b>Oxidizing properties:</b>	Value not relevant for classification
<b>Particle characteristics:</b>	Not applicable
<b>9.2 Other information</b>	No data available.

### SECTION 10: Stability and reactivity

<b>10.1 Reactivity:</b>	Stable under normal use conditions.
<b>10.2 Chemical Stability:</b>	Stable under normal use conditions.
<b>10.3 Possibility of hazardous reactions:</b>	Stable under normal use conditions.
<b>10.4 Conditions to avoid:</b>	Stable under normal use conditions.
<b>10.5 Incompatible Materials:</b>	Strong oxidizing substances. Strong acids. Strong bases.
<b>10.6 Hazardous Decomposition Products:</b>	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

### SECTION 11: Toxicological information

#### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

##### Acute toxicity

##### Oral

<b>Product:</b>	ATEmix: 30.959 mg/kg
<b>Specified substance(s)</b> organic Polysulphide	LD 50 (Rat): 6.500 mg/kg

##### Dermal

<b>Product:</b>	Not classified for acute toxicity based on available data.
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##### Inhalation

<b>Product:</b>	Not classified for acute toxicity based on available data.
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##### Skin Corrosion/Irritation:

<b>Product:</b>	Based on available data, the classification criteria are not met.
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##### Serious Eye Damage/Eye Irritation:

<b>Product:</b>	Based on available data, the classification criteria are not met.
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##### Respiratory or Skin Sensitization:

<b>Product:</b>	Experimental data has shown that the concentration of potentially sensitizing components present in this product does not induce skin sensitization.
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### Germ Cell Mutagenicity

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

### Carcinogenicity

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

### Reproductive toxicity

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

### Specific Target Organ Toxicity - Single Exposure

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

### Specific Target Organ Toxicity - Repeated Exposure

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

### Aspiration Hazard

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

## 11.2 Information on other hazards

### Endocrine disrupting properties

**Product:** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Acute toxicity

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

#### Fish

##### Specified substance(s)

dithiophosphoric acid derivative LC 50 (Fish, 96 h): 8,5 mg/l

#### Aquatic Invertebrates

##### Specified substance(s)

organic Polysulphide EC 50 (Water Flea, 48 h): 63 mg/l (OECD 202)

dithiophosphoric acid derivative EC 50 (Water Flea, 48 h): 91,4 mg/l

**Chronic Toxicity Product:** Based on available data, the classification criteria are not met.

#### Toxicity to Aquatic Plants

##### Specified substance(s)

organic Polysulphide EC 50 (Alga, 72 h): > 101 mg/l (OECD 201)

dithiophosphoric acid derivative NOEC (Alga, 96 h): 1,7 mg/l

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### 12.2 Persistence and Degradability

#### Biodegradation

<b>Product:</b>	Not applicable for mixtures
<b>Specified substance(s)</b> organic Polysulphide	13 % (28 d, OECD 301B) Not readily degradable.
dithiophosphoric acid derivative	7,4 % (28 d, OECD 301B) Not easily biodegradable

### 12.3 Bioaccumulative potential

<b>Product:</b>	Not applicable for mixtures
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### 12.4 Mobility in soil:

<b>Product:</b>	Not applicable for mixtures
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### 12.5 Results of PBT and vPvB assessment:

The product does not contain any substances fulfilling the PBT/vPvB criteria.

### 12.6 Endocrine disrupting properties

<b>Product:</b>	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
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### 12.7 Other adverse effects:

No data available.

#### Water Hazard Class (WGK):

WGK 2: significantly water-endangering.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

<b>General information:</b>	Dispose in accordance with all applicable regulations.
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<b>Disposal methods:</b>	Do not empty into drains; dispose of this material and its container in a safe way. When storing used products, ensure that the waste categories and mixing instructions are observed.
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#### European Waste Codes

13 02 05\*: mineral-based non-chlorinated engine, gear and lubricating oils



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### SECTION 14: Transport information

#### ADR/RID

- 14.1 UN number or ID number: —
- 14.2 UN Proper Shipping Name: —
- 14.3 Transport Hazard Class(es)
  - Class: Non-dangerous goods
  - Label(s): —
  - Hazard No. (ADR): —
  - Tunnel restriction code: —
- 14.4 Packing Group: —
- 14.5 Environmental hazards: —
- 14.6 Special precautions for user: —

#### IMDG

- 14.1 UN number or ID number: —
- 14.2 UN Proper Shipping Name: —
- 14.3 Transport Hazard Class(es)
  - Class: Non-dangerous goods
  - Label(s): —
  - EmS No.: —
- 14.3 Packing Group: —
- 14.5 Environmental hazards: —
- 14.6 Special precautions for user: —

#### IATA

- 14.1 UN number or ID number: —
- 14.2 Proper Shipping Name: —
- 14.3 Transport Hazard Class(es):
  - Class: Non-dangerous goods
  - Label(s): —
- 14.4 Packing Group: —
- 14.5 Environmental hazards: —
- 14.6 Special precautions for user: —

**14.7 Maritime transport in bulk according to IMO instruments:** Not applicable.

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

##### EU Regulations

**EU. Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances:** none

**EU. Regulation 2019/1021/EU on persistent organic pollutants (POPs) (recast), as amended:** none

**Regulation (EC) No. 649/2012 Import and export of dangerous chemicals:** none

##### National Regulations

**Water Hazard Class** WGK 2: significantly water-endangering.

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(WGK):

**15.2 Chemical safety assessment:**

No Chemical Safety Assessment has been carried out.

### DIRECTIVE 2012/18/EU (SEVESO III) on the control of major-accident hazards involving dangerous substances

Not applicable

### SECTION 16: Other information

**Revision Information:** Vertical lines in the margin indicate an amendment.

#### Wording of the H-statements in section 2 and 3

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

**Other information:** The classification complies with the current EU lists; however, it has been supplemented with expert literature information and information provided by/about our company. The following evaluation methods were used: - On the basis of test data - Calculation Method - Bridging Principle "Substantially similar mixtures" - Expert Judgement

**Disclaimer:** The data contained in this safety data sheet are based on our current knowledge and experience and are given to the best of our knowledge and belief. It characterizes the product only with regard to safety requirements for handling, transport and disposal. The data do not describe the product's properties (tech. product specification). Neither should any agreed property nor the suitability of the product for any specific technical application be deduced from the data contained in this safety data sheet. Modifications on this document are not allowed. The data are not transferable to other products. In the case of mixing the product with other products or in the case of processing, the data in this safety data sheet are not necessarily valid for the new-made material. It is the responsibility of the recipient of the product to observe federal, state and local law. Please contact us to obtain up-to-date safety data sheets. This document was issued electronically and has no signature.