1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: ZF EcoFluid X

Product code: 0681.000.410
0681.000.411
0681.000.412

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

Use of the Substance/Mixture: Lubricant
Uses advised against: No uses advised against identified.

1.3 Details of the supplier of the safety data sheet

ZF Friedrichshafen AG
ZF Aftermarket
Obere Weiden 12
97424 Schweinfurt
Germany
+49 9721 475 60
www.zf.com/contact

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

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

EUH208: Contains organic Polysulphide, amine phosphate, Magnesium metab-
SAFETY DATA SHEET
According to Regulation (EC) No. 1907/2006 (REACH)
Article 31, Annex II as amended.

Trade name: ZF EcoFluid X

May produce an allergic reaction.
EUH210: Safety data sheet available on request.

2.3 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.

3. Composition/information on ingredients

3.2 Mixtures
General information: Mixture containing severely refined base oils and additives.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identifier</th>
<th>Concentration*</th>
<th>REACH Registration No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>organic Polysulphide</td>
<td>EINECS: 273-103-3</td>
<td>1,00 - &lt;5,00%</td>
<td>01-2119540515-43</td>
</tr>
<tr>
<td>amine phosphate</td>
<td>EINECS: 931-384-6</td>
<td>1,00 - &lt;2,50%</td>
<td>01-2119493620-38</td>
</tr>
<tr>
<td>Methacrylate copolymer</td>
<td>Confidential</td>
<td>1,00 - &lt;5,00%</td>
<td>Confidential</td>
</tr>
</tbody>
</table>

* 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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identifier</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>organic Polysulphide</td>
<td>EINECS: 273-103-3</td>
<td>CLP: Skin Sens. 1B; H317, Aquatic Chronic 3; H412</td>
</tr>
<tr>
<td>amine phosphate</td>
<td>EINECS: 931-384-6</td>
<td>CLP: Eye Dam. 1; H318, Acute Tox. 4; H302, Skin Sens. 1; H317, Aquatic Chronic 2; H411</td>
</tr>
<tr>
<td>Methacrylate copolymer</td>
<td>Confidential</td>
<td>CLP: Eye Irrit. 2; H319</td>
</tr>
</tbody>
</table>

Trade name: ZF EcoFluid X

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identifier</th>
<th>specific concentration limit</th>
<th>Hazard class</th>
<th>Haz. Category</th>
<th>Hazard statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>organic Polysulphide</td>
<td>EINECS:</td>
<td>&gt;= 45,99%</td>
<td>Skin sensitizer</td>
<td>1B</td>
<td>H317</td>
</tr>
<tr>
<td>amine phosphate</td>
<td>273-103-3</td>
<td>&gt;= 9,39%</td>
<td>Skin sensitizer</td>
<td>1</td>
<td>H317</td>
</tr>
<tr>
<td></td>
<td>EINECS:</td>
<td>&gt;50%</td>
<td>Serious eye damage</td>
<td>1</td>
<td>H318</td>
</tr>
<tr>
<td></td>
<td>931-384-6</td>
<td>&gt;50%</td>
<td>Serious eye irritation</td>
<td>2</td>
<td>H319</td>
</tr>
<tr>
<td>Methacrylate copolymer</td>
<td>Confidential</td>
<td>&gt;= 75%</td>
<td>Serious eye irritation</td>
<td>2</td>
<td>H319</td>
</tr>
</tbody>
</table>

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 Note L of Annex VI of Regulation EC 1272/2008."

4. First aid measures

General: Instantly remove any clothing soiled by the product.

4.1 Description of first aid measures

If inhaled: Supply fresh air; consult doctor in case of symptoms.

In case of skin contact: Wash with soap and water.

In case of eye contact: Promptly wash eyes with plenty of water while lifting the eye lids.

If swallowed: 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.

5. Firefighting measures
Trade name: ZF EcoFluid X

5.1 Extinguishing media

Suitable extinguishing media: CO2, 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 protective equipment for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Specific extinguishing methods: 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.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

In case of spills, beware of slippery floors and surfaces.

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 materials 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.
贸易名称: ZF EcoFluid X

6.4 参考其他部分

见 SDS 第 8 部分的个人防护设备。见第 7 部分的信息，有关安全处理。见第 13 部分的信息，有关处理。
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: Safety glasses (EN 166) recommended during refilling. Avoid contact with skin and eyes. Goggles/face shield are recommended. If risk of splashing, wear safety goggles or face shield.

Hand protection: Material: Nitrile butyl rubber (NBR). Min. Breakthrough time: >= 480 min Recommended thickness of the material: >= 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...
Trade name: ZF EcoFluid X

Environmental controls: No data available.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state:</td>
<td>liquid</td>
</tr>
<tr>
<td>Form:</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour:</td>
<td>Brown</td>
</tr>
<tr>
<td>Odour:</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odour Threshold:</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>pH:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Value not relevant for classification</td>
</tr>
<tr>
<td>Flash point</td>
<td>200 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Value not relevant for classification</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.89 g/ml (15°C)</td>
</tr>
</tbody>
</table>

Solubility(ies)

Water solubility
Insoluble in water
### Trade name: ZF EcoFluid X

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility in other solvents</td>
<td>No data available.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable for mixtures</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Value not relevant for classification</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Value not relevant for classification</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>142mm²/s (40°C)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Value not relevant for classification</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Value not relevant for classification</td>
</tr>
</tbody>
</table>

#### 9.2 Other information

Data not available

#### 10. Stability and reactivity

**10.1 Reactivity**

Stable under normal use conditions.

**10.2 Chemical stability:**

Stable under normal use conditions.

**10.3 Possibility of hazardous reactions:**

Stable under normal use conditions.

**10.4 Conditions to avoid:**

Stable under normal use conditions.

**10.5 Incompatible materials:**


**10.6 Hazardous decomposition products:**

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

#### 11. Toxicological information
11.1 Information on toxicological effects

**Acute toxicity**

*Oral*
Product: ATEmix: 30.959mg/kg
Specified substance(s)
organic Polysulphide LD 50 (Rat): 6500 mg/kg

*Dermal*
Product: Not classified for acute toxicity based on available data.

*Inhalation*
Product: Not classified for acute toxicity based on available data.

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

**Serious eye damage/eye irritation**
Product: Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation**
Product: Experimental data has shown that the concentration of potentially sensitizing components present in this product does not induce skin sensitization.

**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.

**STOT - single exposure**
Product: Based on available data, the classification criteria are not met.

**STOT - repeated exposure**
Product: Based on available data, the classification criteria are not met.
12. Ecological information

12.1 Toxicity

Acute toxicity
- Product: Based on available data, the classification criteria are not met.

Fish
- Specified substance(s)
  - amine phosphate: LC 50 (Fish, 96 h): 24 mg/l

Aquatic Invertebrates
- Specified substance(s)
  - organic Polysulphide: EC 50 (Water Flea, 48 h): 63 mg/l (OECD 202)
  - amine phosphate: EC 50 (Water Flea, 48 h): 91,4 mg/l

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

Aquatic Invertebrates
- Specified substance(s)
  - amine phosphate: NOEC (Water Flea, 21 d): 0,12 mg/l

Toxicity to Aquatic Plants
- Specified substance(s)
  - organic Polysulphide: EC 50 (Alga, 72 h): > 101 mg/l (OECD 201)
  - amine phosphate: EC 50 (Alga, 72 h): > 100 mg/l

12.2 Persistence and degradability

Biodegradability
- Product: Not applicable for mixtures

Specified substance(s)
- organic Polysulphide: 13 % (28 d, OECD 301B) Not readily degradable.

12.3 Bioaccumulative potential

Bioakkumulation
- Product: Not applicable for mixtures
SAFETY DATA SHEET
According to Regulation (EC) No. 1907/2006 (REACH)
Article 31, Annex II as amended.

Trade name: ZF EcoFluid X

12.4 Mobility in soil
Mobility Product:
Not applicable for mixtures

12.5 Results of PBT and vPvB assessment
Assessment Product:
The product does not contain any substances fulfilling the PBT/vPvB criteria.

12.6 Other adverse effects
No data available
Water Hazard Class (WGK):
WGK 2: water-endangering.

13. Disposal considerations

13.1 Waste treatment methods
General information:
Dispose in accordance with all applicable regulations.

Disposal methods:
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.

EU Waste Disposal Code (EWC):
13 02 05* mineral-based non-chlorinated engine, gear and lubricating oils

14 Transport information

ADR/RID
14.1 UN 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: --

ADN
14.1 UN Number: --
SAFETY DATA SHEET
According to Regulation (EC) No. 1907/2006 (REACH)
Article 31, Annex II as amended.

Trade name: ZF EcoFluid X
14.2 UN Proper Shipping Name: --
14.3 Transport Hazard Class(es)
   Class: Non-dangerous goods
   Label(s): --
14.3 Packing Group: --
14.5 Environmental hazards: --
14.6 Special precautions for user: --

IMDG
14.1 UN 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: --
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 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: not applicable.

15. Regulatory information
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU Regulations
Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

15.2 Chemical safety assessment
No Chemical Safety Assessment has been carried out.

16. Other information
SAFETY DATA SHEET
According to Regulation (EC) No. 1907/2006 (REACH)
Article 31, Annex II as amended.

Trade name: ZF EcoFluid X

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.
H318 Causes serious eye damage.
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 is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies. The classification results from the Conventional Method mentioned in regulation EU 1272/2008 (CLP).

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.