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

1.1 Product identifier

Trade name: ZF EcoFluid A Life

Product code: 0671.072.120

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

Use of the Substance/Mixture: Transmission oil.

Uses advised against: This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

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 19240 Information in German and English

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
Skin sensitisation, Category 1

H317: May cause an allergic skin reaction.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Trade name: ZF EcoFluid A Life

Hazard pictograms:

Signal word: Warning
Hazard statements
PHYSICAL HAZARDS: Not classified as a physical hazard according to CLP criteria.
HEALTH HAZARDS: H317 May cause an allergic skin reaction.
ENVIRONMENTAL HAZARDS: Not classified as environmental hazard according to CLP criteria.

Precautionary statements:
Prevention: P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response: P302 + P352 IF ON SKIN: Wash with plenty of water.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
Storage: No precautionary phrases.
Disposal: P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label: Contains amine phosphate.

2.3 Other hazards
This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Used oil may contain harmful impurities.
Not classified as flammable but will burn.

3. Composition/information on ingredients
3.2 Mixtures
Chemical nature: Synthetic base oil and additives. Highly refined mineral oil. The highly refined mineral oil contains <3% (w/w) DMSOextract, according to IP346.
Trade name: ZF EcoFluid A Life

* contains one or more of the following CAS-numbers (REACH registration numbers):
  64742-63-6 (01-2119480375-34),
  64742-64-7 (01-2119484627-25),
  64742-65-8 (01-2119487077-29),
  64742-66-9 (01-2119480132-48),
  64742-67-0 (01-2119471299-27),
  68037-01-4 (01-2119486452-34),
  72623-86-0 (01-2119474878-16),
  72623-87-1 (01-2119474889-13),
  8042-47-5 (01-2119487078-27),
  848301-69-9 (01-00000020163-82).

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Registration number</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long chain alkyl amine thio-phosphate</td>
<td>417-450-2</td>
<td>Skin Irrit.2; H315 Skin Sens.1A; H317 Eye Irrit.2; H319 Aquatic Chronic3; H412</td>
<td>0,1 - 0,99</td>
</tr>
<tr>
<td>Interchangeable low viscosity base oil (&lt;20,5 cSt @40°C) *</td>
<td></td>
<td>Asp. Tox.1; H304</td>
<td>0 - 90</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.

4. First aid measures

4.1 Description of first aid measures

Protection of first-aiders:

When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled:

No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.
Trade name: ZF EcoFluid A Life

In case of skin contact: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.

In case of eye contact: Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain medical attention.

If swallowed: In general, no treatment is necessary unless large quantities are swallowed, however, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Skin sensitisation (allergic skin reaction) signs and symptoms may include itching and/or a rash. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Notes to doctor/physician: Treat symptomatically.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media: Do not use water in a jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases
5.3 Advice for firefighters

Special protective equipment for firefighters:
Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods:
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:
For non emergency personnel:
Avoid contact with skin and eyes.

Emergency responders:
For emergency responders:
Avoid contact with skin and eyes.

6.2 Environmental precautions

Environmental precautions:
Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up:
Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent.
6.4 Reference to other sections
For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.
For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling:
- Avoid prolonged or repeated contact with skin.
- Avoid inhaling vapour and/or mists.
- When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
- Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Product Transfer:
- Proper grounding and bonding procedures should be used during all bulk transfer operations to avoid static accumulation.

7.2 Conditions for safe storage, including any incompatibilities

Other data:
- Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers.
- Store at ambient temperature.
- Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Trade name: ZF EcoFluid A Life

The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance may be obtained from the local environmental agency office.

Packaging material:
Suitable material: For containers or container linings, use mild steel or high density polyethylene.
Unsuitable material: PVC.

Container Advice:
Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

7.3 Specific end use(s)
Specific use(s) Not applicable

8. Exposure controls/personal protection

8.1 Control parameters
Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil mist, mineral</td>
<td>--</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>US. ACGIH Threshold Limit Values</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits
No biological limit allocated.

Monitoring Methods
Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Ana-
8.2 Exposure controls

Engineering measures
The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

- Adequate ventilation to control airborne concentrations.
- Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Personal protective equipment
The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.
Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye protection: Wear full face shield if splashes are likely to occur.
Approved to EU Standard EN166.
Hand protection: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

Skin and body protection: Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron. Protective clothing approved to EU Standard EN14605.

Respiratory protection: No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering
controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.

Thermal hazards: Not applicable

Hygiene measures
Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication "COSHH Essentials".

Environmental exposure controls
General advice: Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Liquid
Colour: amber
Odour: Slight hydrocarbon
Odour Threshold: Data not available
pH: Not applicable
### SAFETY DATA SHEET
Regulation 1907/2006/EC

**Trade name:** ZF EcoFluid A Life

<table>
<thead>
<tr>
<th>Property</th>
<th>Value/Range</th>
<th>Method/Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pour point</td>
<td>-48°C</td>
<td>ASTM D97</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>&gt; 280 °C</td>
<td>estimated value(s)</td>
</tr>
<tr>
<td>Flash point</td>
<td>240°C</td>
<td>EN ISO 2592</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Data not available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Data not available</td>
<td></td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>Typical 10 % (V)</td>
<td></td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>Typical 1 % (V)</td>
<td></td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 0.5 Pa (20 °C)</td>
<td>estimated value(s)</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>&gt; 1 estimated value(s)</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>0.830 – 0.840 (15°C)</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>830 – 840 kg/m³ (15°C)</td>
<td>ISO 12185</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>negligible</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>Data not available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Pow: &gt; 6 (based on information on similar products)</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>&gt; 320°C</td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Data not available</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>68 mm²/s (40°C) 10 mm²/s (100°C)</td>
<td>ASTM D445</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not classified</td>
<td></td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
Regulation 1907/2006/EC

Trade name: ZF EcoFluid A Life

<table>
<thead>
<tr>
<th>Oxidizing properties</th>
<th>Data not available</th>
</tr>
</thead>
</table>

9.2 Other information
Conductivity: This material is not expected to be a static accumulator.
Decomposition temperature: Data not available

10. Stability and reactivity
10.1 Reactivity: The product does not pose any further reactivity hazards in addition to those listed in the following subparagraph.

10.2 Chemical stability: Stable. No hazardous reaction is expected when handled and stored according to provisions.

10.3 Possibility of hazardous reactions: Reacts with strong oxidising agents.

10.4 Conditions to avoid: Extremes of temperature and direct sunlight.

10.5 Incompatible materials: Strong oxidising agents.

10.6 Hazardous decomposition products: No decomposition if stored and applied as directed.

11. Toxicological information
11.1 Information on toxicological effects
Basis for assessment: Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Information on likely routes of exposure: Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

Acute toxicity
ZF Friedrichshafen AG • ZF Aftermarket
© ZF Friedrichshafen AG Revision Date: 18.12.2019
Obere Weiden 12, 97424 Schweinfurt, Germany Phone: +49 9721 4756-0
www.zf.com/contact

12/28
Trade name: ZF EcoFluid A Life

Product:
Acute oral toxicity: LD50 rat: > 5.000 mg/kg
Remarks: Low toxicity:
Based on available data, the classification criteria are not met.

Acute inhalation toxicity: Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity: LD50 Rabbit: > 5.000 mg/kg
Remarks: Low toxicity:
Based on available data, the classification criteria are not met.

Skin corrosion/irritation
Product:
Remarks: Slightly irritating to skin. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation
Product:
Remarks: Slightly irritating to the eye. Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation
Product:
Remarks: For skin sensitisation: Expected to be a skin sensitizer.
Remarks: For respiratory sensitisation: Not expected to be a sensitizer. Not a sensitizer. Based on available data, the classification criteria are not met.

Germ cell mutagenicity
Product:
Remarks: Non mutagenic, Based on available data, the classification criteria are not met.

Carcinogenicity
Product:
Remarks: Not a carcinogen. Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>Material</th>
<th>GHS/CLP Carcinogenicity Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long chain alkyl amine thiophosphate</td>
<td>No carcinogenicity classification</td>
</tr>
<tr>
<td>Highly refined mineral oil</td>
<td>No carcinogenicity classification</td>
</tr>
</tbody>
</table>

Reproductive toxicity
Trade name: ZF EcoFluid A Life

Product:
Remarks: Not a developmental toxicant. Does not impair fertility. Based on available data, the classification criteria are not met.

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

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

Aspiration toxicity
Product:
Not an aspiration hazard.

Further information
Product:
Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.
Remarks: Slightly irritating to respiratory system.
Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

Summary on evaluation of the CMR properties

Germ cell mutagenicity – Assessment: This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity – Assessment: This product does not meet the criteria for classification in categories 1A/1B.

Reproductive toxicity – Assessment: This product does not meet the criteria for classification in categories 1A/1B.

12. Ecological information

12.1 Toxicity
Basis for assessment: Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is
Trade name: ZF EcoFluid A Life

representative of the product as a whole, rather than for individual component(s).
(LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Product:
Toxicity to fish (Acute toxicity):
Remarks: LL/EL/IL50 > 100 mg/l
Practically non toxic:
Based on available data, the classification criteria are not met.

Toxicity to crustacean (Acute toxicity)
Remarks: LL/EL/IL50 > 100 mg/l
Practically non toxic:
Based on available data, the classification criteria are not met.

Toxicity to algae/aquatic plants (Acute toxicity)
Remarks: LL/EL/IL50 > 100 mg/l
Practically non toxic:
Based on available data, the classification criteria are not met.

Toxicity to fish (Chronic toxicity)
Remarks: Data not available

Toxicity to crustacean (Chronic toxicity)
Remarks: Data not available

Toxicity to microorganisms (Acute toxicity)
Remarks: Data not available

12.2 Persistence and degradability
Product:
Biodegradability
Remarks: Not readily biodegradable. Major constituents are inherently biodegradable, but contains components that may persist in the environment.

12.3 Bioaccumulative potential
Product:
Bioakkumulation
Remarks: Contains components with the potential to bioaccumulate.

Partition coefficient: n-octanol/water
Pow: > 6
Remarks: (based on information on similar products)

12.4 Mobility in soil
Product:
Mobility
Remarks: Liquid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile.
Remarks: Floats on water.
Trade name: ZF EcoFluid A Life

12.5 Results of PBT and vPvB assessment
Product: Assessment
This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects
Product: Additional ecological information
Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential. Product is a mixture of non-volatile components, which will not be released to air in any significant quantities under normal conditions of use. Poorly soluble mixture. Causes physical fouling of aquatic organisms.

13. Disposal considerations

13.1 Waste treatment methods
Product: Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.

Contaminated packaging: Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local legislation
Waste catalogue
Trade name: ZF EcoFluid A Life

EU Waste Disposal Code (EWC): 13 02 06*

Remarks: Disposal should be in accordance with applicable regional, national, and local laws and regulations. Classification of waste is always the responsibility of the end user. Hazardous Waste (England and Wales) Regulations 2005.

14 Transport information

14.1 UN number

| ADR: Not regulated as a dangerous good |
| RID: Not regulated as a dangerous good  |
| IMDG: Not regulated as a dangerous good |
| IATA: Not regulated as a dangerous good |

14.2 Proper shipping name

| ADR: Not regulated as a dangerous good |
| RID: Not regulated as a dangerous good  |
| IMDG: Not regulated as a dangerous good |
| IATA: Not regulated as a dangerous good |

14.3 Transport hazard class

| ADR: Not regulated as a dangerous good |
| RID: Not regulated as a dangerous good  |
| IMDG: Not regulated as a dangerous good |
| IATA: Not regulated as a dangerous good |

14.4 Packing group

| ADR: Not regulated as a dangerous good |
| RID: Not regulated as a dangerous good  |
| IMDG: Not regulated as a dangerous good |
| IATA: Not regulated as a dangerous good |

14.5 Environmental hazards

| ADR: Not regulated as a dangerous good |
| RID: Not regulated as a dangerous good  |
| IMDG: Not regulated as a dangerous good |
SAFETY DATA SHEET
Regulation 1907/2006/EC

Trade name: ZF EcoFluid A Life

14.6 Special precautions for user
Remarks: Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
REACH - List of substances subject to authorization (Annex XIV) Product is not subject to Authorisation under REACH.

Volatile organic compounds: 0 %

Other regulations: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
The components of this product are reported in the following inventories:

- **EINECS:** All components listed or polymer exempt.
- **TSCA:** All components listed.

### 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.
16. Other information

REGULATION (EC) No 1272/2008
Skin sensitisation, Category 1, H317

Classification procedure
Expert judgement and weight of evidence determination.

Full text of H-Statements

H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Aquatic Chronic  Chronic aquatic toxicity
Asp. Tox.  Aspiration hazard
Eye Irrit.  Eye irritation
Skin Irrit.  Skin irritation
Skin Sens.  Skin sensitisation

Abbreviations and Acronyms:
The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS = Australian Inventory of Chemical Substances
ASTM = American Society for Testing and Materials
BEL = Biological exposure limits
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
CAS = Chemical Abstracts Service
CEFIC = European Chemical Industry Council
CLP = Classification Packaging and Labelling
COC = Cleveland Open-Cup
DIN = Deutsches Institut fur Normung
DMEL = Derived Minimal Effect Level
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Trade name: ZF EcoFluid A Life

DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals
ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method No. 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPVP = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
SAFETY DATA SHEET
Regulation 1907/2006/EC

Trade name: ZF EcoFluid A Life

Further information
Training advice
Provide adequate information, instruction and training for operators.

Other information:
A vertical bar (|) in the left margin indicates an amendment from the previous version.

Sources of key data used to compile the Safety Data Sheet
The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers’ data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Identified Uses according to the Use Descriptor System
Uses – Worker

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Exposure Scenario – Worker
300000000170

SECTION 1

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</tr>
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STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

Further information
Training advice
Provide adequate information, instruction and training for operators.

Other information:
A vertical bar (|) in the left margin indicates an amendment from the previous version.

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The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers’ data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

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Exposure Scenario – Worker
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Trade name: ZF EcoFluid A Life

ERC7, ATIEL-ATC SPERC 4.Bi.v1

Scope of process
covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.

SECTION 2
OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES

Additional Information
No exposure assessment presented for the environment

Section 2.1
Control of Worker Exposure

Product Characteristics

Physical form of product
Liquid, vapour pressure < 0.5 kPa at STP

Concentration of the Substance in Mixture/Article
Covers use of substance/product up to 100% (unless stated differently).

Frequency and Duration of Use
Covers daily exposures up to 8 hours (unless stated differently).

Other Operational Conditions affecting Exposure
Assumes use at not more than 20°C above ambient temperature (unless stated differently).
Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios

General measures applicable to all activities.

Risk Management Measures
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product, also...
SAFETY DATA SHEET
Regulation 1907/2006/EC

Trade name: ZF EcoFluid A Life

via contamination on hands.

General exposures (closed systems) Use in closed process, no likelihood of exposure

No other specific measures identified.

Initial factory fill of equipment Use in contained systems Use in closed, continuous process with occasional controlled exposure Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

No other specific measures identified.

Initial factory fill of equipment (open systems) Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

Avoid carrying out activities involving exposure for more than 4 hours

Operation of equipment containing engine oils and similar. Use in contained systems Use in closed process, no likelihood of exposure

No other specific measures identified.

Equipment cleaning and maintenance Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Drain down system prior to equipment opening or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature). Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Drain down system prior to equipment opening or maintenance. Provide extract ventilation to emission points when contact with warm (>50°C) product is likely. Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Trade name: ZF EcoFluid A Life

Storage. Use in closed process, no likelihood of exposure. Use in closed, continuous process with occasional controlled exposure.

Section 2.2 Control of Environmental Exposure

No exposure assessment presented for the environment.

SECTION 3 EXPOSURE ESTIMATION

Section 3.1 – Health

The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 – Environment

No exposure assessment presented for the environment.

SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 – Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 – Environment

No exposure assessment presented for the environment.

Exposure Scenario – Worker

300000000171

SECTION 1 EXPOSURE SCENARIO TITLE

Title General use of lubricants and greases in vehicles or machinery. Professional

Use Descriptor Sector of Use: SU 22

Process Categories: ..., Environmental Release Categories: ERC9a, ERC9b, ESVOC SpERC 9.6b.v1
Trade name: ZF EcoFluid A Life

Scope of process: Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.

SECTION 2

OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES

Additional Information

No exposure assessment presented for the environment.

Section 2.1

Control of Worker Exposure

Product Characteristics

Physical form of product: Liquid, vapour pressure < 0.5 kPa at STP

Concentration of the Substance in Mixture/Article

Covers use of substance/product up to 100% (unless stated differently).

Frequency and Duration of Use

Covers daily exposures up to 8 hours (unless stated differently).

Other Operational Conditions affecting Exposure

Assumes use at not more than 20°C above ambient temperature (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios

General measures applicable to all activities.

Risk Management Measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
Trade name: ZF EcoFluid A Life

Operation of equipment containing engine oils and similar. Use in contained systems. Use in closed process, no likelihood of exposure.

Material transfers. Non-dedicated facility. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.

Equipment cleaning and maintenance. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Heat and pressure transfer fluids in dispersive, professional use but closed systems.

Storage. Use in closed process, no likelihood of exposure. Use in closed, continuous process with occasional controlled exposure.

No other specific measures identified.

Avoid carrying out activities involving exposure for more than 4 hours.

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Drain down system prior to equipment opening or maintenance.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Store substance within a closed system.

Section 2.2

Control of Environmental Exposure

No exposure assessment presented for the environment.

SECTION 3

EXPOSURE ESTIMATION

Section 3.1 – Health

The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 – Environment

No exposure assessment presented for the environment.

SECTION 4

GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 – Health
Trade name: ZF EcoFluid A Life

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 - Environment

No exposure assessment presented for the environment.