



**Trade name: ZF EcoFluid A Life**

ZF Aftermarket

**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  
0671.072.130

**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](http://www.zf.com/contact)**

**1.4 Emergency telephone number**

**24/7h Emergency telephone number:**  
+49 (0)89 19240 Information in German and English

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**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)**



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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.

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## 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.



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\* contains one or more of the following CAS-numbers (REACH registration numbers):  
64742-53-6 (01-2119480375-34),  
64742-54-7 (01-2119484627-25),  
64742-55-8 (01-2119487077-29),  
64742-56-9 (01-2119480132-48),  
64742-65-0 (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 (01-0000020163-82).

### Hazardous components

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

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.



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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.
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#### **4.3 Indication of any immediate medical attention and special treatment needed**

Treatment:	Notes to doctor/physician: Treat symptomatically.
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### **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
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(smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.

### 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.

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## 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.



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Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly

#### **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.

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### **7. Handling and storage**

General Precautions:

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

#### **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.



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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

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Oil mist, mineral	--	TWA	5 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values

### 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-



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lytical Methods  
<http://www.cdc.gov/niosh/>  
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods  
<http://www.osha.gov/>  
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances  
<http://www.hse.gov.uk/>  
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany  
<http://www.dguv.de/inhalt/index.jsp>  
L'Institut National de Recherche et de Sécurité, (INRS), France  
<http://www.inrs.fr/accueil>

## **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.





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**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



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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



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Pour point	-48°C	ASTM D97
Initial boiling point and boiling range	> 280 °C	estimated value(s)
Flash point	240°C	EN ISO 2592
Evaporation rate	Data not available	
Flammability (solid, gas)	Data not available	
Upper explosion limit	Typical 10 %(V)	
Lower explosion limit	Typical 1 %(V)	
Vapour pressure	< 0,5 Pa (20 °C)	estimated value(s)
Relative vapour density	> 1 estimated value(s)	

Relative density	0,830 – 0,840 (15°C)	
Density	830 – 840 kg/m <sup>3</sup> (15°C)	ISO 12185
<b>Solubility(ies)</b>		
Water solubility	negligible	
Solubility in other solvents	Data not available	
Partition coefficient: n-octanol/water	Pow: > 6 (based on information on similar products)	
Auto-ignition temperature	> 320°C	
Viscosity, dynamic	Data not available	
Viscosity, kinematic	68 mm <sup>2</sup> /s (40°C) 10 mm <sup>2</sup> /s (100°C)	ASTM D445
Explosive properties	Not classified	



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Oxidizing properties	Data not available	
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**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**



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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.

Material	GHS/CLP Carcinogenicity Classification
Long chain alkyl amine thiophosphate	No carcinogenicity classification
Highly refined mineral oil	No carcinogenicity classification

### **Reproductive toxicity**



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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.

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**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



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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.
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## **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.
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**12.5 Results of PBT and vPvB assessment**

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

**12.6 Other adverse effects**

Product: 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.  
Additional ecological information

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**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





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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.

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## 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



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**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.

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**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.  
Environmental Protection Act 1990 (as amended). Health and Safety at Work etc. Act 1974. Consumers Protection Act 1987. Pollution Prevention and Control Act 1999. Environment Act 1995. Factories Act 1961. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). Control of Major Accident Hazards Regulations 1999 (as amended). Renewable Transport Fuel Obligations Order 2007 (as amended). Energy Act 2011. En-



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environmental Permitting (England and Wales) Regulations 2010 (as amended). Waste (England and Wales) Regulations 2011 (as amended). Planning (Hazardous Substances) Act 1990 and associated regulations. The Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), annex XIV. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), annex XVII. Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso III). Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work and its amendments. Directive 1994/33/EC on the protection of young people at work and its amendments. Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding and its amendments.

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.



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**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 für Normung  
DMEL = Derived Minimal Effect Level



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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 N° 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\_HP = 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



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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.

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

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

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

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 EXPOSURE SCENARIO TITLE

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

Use Descriptor Sector of Use: SU 3  
Process Categories: PROC1, PROC2, PROC8b, PROC9  
Environmental Release Categories: ERC4,



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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

Risk Management Measures

General measures applicable to all activities.

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



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

via contamination on hands.

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.





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

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**

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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**

**Risk Management Measures**

General measures applicable to all activities.

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.



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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.

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

Avoid carrying out activities involving exposure for more than 4 hours. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

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

Drain down system prior to equipment opening or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

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

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**

ZF Aftermarket

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.