

# SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

## 1. Product and company identification

### 1.1 Product identifier

Product name: ZF Lifeguard eFluid 2

Product number: 0671.090.534

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

Identified uses: Hydraulic/transmission fluid

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 number

**24/7h Emergency information/ emergency number:**

(+49) 89 19 240 (Poison emergency call – Information in German and English)

## 2. Hazards identification

### 2.1 Classification of the substance or mixture

The product has been classified and labelled as hazardous according to regulation GB-CLP.

#### Classification according to GB-CLP.

##### Environmental Hazards

Chronic hazards to the aquatic environment

Category 3

H412: Harmful to aquatic life with long lasting effects.

##### Hazard summary

No data available.

##### Physical Hazards:

# SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

## 2.2 Label Elements

Hazard Statement(s): H412: Harmful to aquatic life with long lasting effects.

### Precautionary Statements

**Prevention:** P273: Avoid release to the environment.

**Disposal:** P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Supplemental label information:** EUH208: Contains: Triisobutyl phosphate. May produce an allergic reaction.

## 2.3 Information on other hazards

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

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## 3. Composition/ Information on ingredients

### 3.2 Mixtures

General information: mixture of synthetic base oils and severely refined base oil.

Chemical name	Identifier	Concentration *	UK-REACH Registration No.
Hydrocarbons, low viscous	EC: 500-183-1	20,00% - <50,00%	
Amine aromatic alkylated	EINECS: 270-128-1	0,10% - <1,00%	
base oil, low viscous	EINECS: 276-738-4	20,00% - <50,00%	
Triisobutyl phosphate	EINECS: 204-798-3	0,10% - <1,00%	
Alkyl amine	EC: 620-540-6	0,10% - <0,25%	
hydrocarbons, low viscous	EINECS: 919-284-0	0,10% - <1,00%	

**SAFETY DATA SHEET**

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

**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

prim. alkanolamine ether	EC: 939-485-7	0,01% - <0,10%	
hydroxyethyl-alkylamine	EINECS: 276-014-8	0,01% - <0,10%	

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

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

**Classification**

Chemical name	Identifier	Classification	
Hydrocarbons, low viscous	EC: 500-183-1	GBCLP:	Asp. Tox. 1;H304
Amine aromatic, alkylated	EINECS: 270-128-1	GBCLP:	Repr. 2;H361f, Aquatic Chronic 3;H412
base oil, low viscous	EINECS: 276-738-4	GBCLP:	Asp. Tox. 1;H304
Triisobutyl phosphate	EINECS: 204-798-3	GBCLP:	Skin Sens. 1B;H317
Alkyl amine	EC: 620-540-6	GBCLP:	Skin Corr. 1C;H314, Eye Dam. 1;H318, Aquatic Acute 1;H400, Aquatic Chronic 1;H410, Acute Tox. 4;H302; M-Factor (aquatic acute): 10; M-Factor (aquatic chronic): 1
hydrocarbons, low viscous	EINECS: 919-284-0	GBCLP:	Carc. 2;H351, Asp. Tox. 1;H304, STOT SE 3;H336, Aquatic Chronic 2;H411
prim. alkanolamine ether	EC: 939-485-7	GBCLP:	Acute Tox. 4;H302, Skin Corr. 1B;H314, Eye Dam. 1;H318, Aquatic Acute 1;H400, Aquatic Chronic 1;H410; M-Factor (aquatic acute): 100; M-Factor (aquatic chronic): 1
hydroxyethyl-alkylamine	EINECS: 276-014-8	GBCLP:	Acute Tox. 4;H302, Skin Corr. 1C;H314, Eye Dam. 1;H318, Repr. 2;H361d, Aquatic Acute 1;H400, Aquatic Chronic 1;H410; M-Factor (aquatic acute): 10; M-Factor (aquatic chronic): 10

**GB-CLP**

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 GB-CLP.

## SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

### 4. First aid measures

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

#### 4.1 Description of first aid measures

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

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

Skin Contact: Wash with soap and water.

Ingestion: Rinse mouth thoroughly.

#### 4.2 Most important symptoms and effects, both acute and delayed

May cause skin and eye irritation.

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

Get medical attention if symptoms occur.

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### 5. Firefighting measures

#### 5.1 Extinguishing media

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

Unsuitable extinguishing media: Water with a full water jet.

#### 5.2 Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

#### 5.3 Advice for firefighters

Special fire fighting procedures: Move container from fire area if it can be done without risk. Dispose of fire debris and contaminated fire fighting water in accordance with official

## SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

regulations. Collect contaminated fire fighting water separately. It must not enter drains.

Special protective equipment for fire-fighters:

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

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### 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

Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent from spreading (e.g. by binding or oil barriers).

Environmental manager must be informed of all major spillages. Do not allow to enter drainage system, surface or ground water.

#### 6.3 Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose of the material collected according to regulations. Stop the flow of material if this is without risk.

#### 6.4 Reference to other sections

See Section 8 of the SDS for Personal Protective Equipment. See Section 7 for information on safe handling See Section 13 for information on disposal.

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### 7. Handling and storage

#### 7.1 Precautions for safe handling

Prevent formation of aerosols. Do not eat, drink or smoke when working with the product. Take usual precautions when handling mineral oil products or chemical products. Observe good industrial hygiene practices. Provide adequate ventilation.

#### 7.2 Conditions for safe storage, including any incompatibilities

Local regulations concerning handling and storage of waterpolluting products have to be followed. Do not heat up to temperatures close to the flash point.

#### 7.3 Specific end use(s)

Not applicable

# SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

Storage Class:  
10, Combustible liquids

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## 8. Exposure controls/ personal protection

### 8.1 Control Parameters

**Occupational Exposure Limits**                      None of the components have assigned exposure limits.

### 8.2 Exposure controls

#### Appropriate engineering controls

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

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

##### General information:

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

##### Eye/face protection:

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.

##### Skin protection Hand Protection:

Material: Nitrile butyl rubber (NBR).  
Min. Breakthrough time:  $\geq$  480 min  
Recommended thickness of the material:  $\geq$  0.38 mm  
Avoid long-term and repeated skin contact. Suitable gloves can be

## SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

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

**Other:**

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

**Respiratory Protection:**

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

**Thermal hazards:**

Not known.

**Hygiene measures:**

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

**Environmental Controls:**

No data available.

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## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Color:	Amber
Odor:	Characteristic
pH:	substance/mixture is non-soluble (in water) Not applicable
Freezing point:	not determined
Boiling Point:	not determined
Flash Point:	220 °C
Evaporation Rate:	Not applicable for mixtures
Flammability (solid, gas):	not determined

# SAFETY DATA SHEET

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



## Product name: ZF Lifeguard eFluid 2

ZF Aftermarket

Flammability Limit - Upper (%)-:	Not applicable for mixtures
Flammability Limit - Lower (%)-:	Not applicable for mixtures
Vapor pressure:	Not applicable for mixtures
Vapor density (air=1):	Not applicable for mixtures
Density:	0.84 g/cm <sup>3</sup> (20 °C)
Solubility(ies)	
Solubility in Water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable for mixtures
Autoignition Temperature:	not determined
Decomposition Temperature:	not determined
Kinematic viscosity:	35 mm <sup>2</sup> /s (40 °C)
Explosive properties:	Value not relevant for classification
Oxidizing properties:	Value not relevant for classification
Particle characteristics:	Not applicable

### 9.2 Other information

No data available.

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## 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	Strong oxidizing substances. Strong acids. Strong bases.
10.6 Hazardous Decomposition Products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

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## 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Oral Product:	Not classified for acute toxicity based on available data.
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# SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

## Specified substance(s)

Hydrocarbons, low viscous  
Amine aromatic, alkylated

LD 50 (Rat): > 5.000 mg/kg

LD 50 (Rat): > 5.000 mg/kg (OECD 401)

base oil, low viscous

LD 50 (Rat): > 5.001 mg/kg (OECD 401)

Alkyl amine  
hydrocarbons, low viscous  
hydroxyethyl-alkylamine

LD 50 (Rat): 1.350 mg/kg (OECD 401)

LD 50 (Rat): 6.318 mg/kg (OECD 423)

LD 50 (Rat): 1.500 mg/kg

## Dermal

Product:

Not classified for acute toxicity based on available data.

## Inhalation

Product:

Not classified for acute toxicity based on available data.

## Specified substance(s)

Hydrocarbons, low viscous

LC 50 (Rat, 4 h): > 5 mg/l

Dusts and mist

## Skin Corrosion/Irritation

Product:

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

## Specified substance(s)

Alkyl amine

OECD 404 (Rabbit, 14 d):

Causes severe skin burns.

## Serious Eye Damage/Eye Irritation

Product:

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

## Specified substance(s)

Amine aromatic, alkylated

OECD 405 (Rabbit):

Not irritant.

## Respiratory or Skin Sensitization

Product:

Skin sensitizer: Based on available data, the classification criteria are not met.

Respiratory sensitizer: Based on available data, the classification criteria are not met.

## Specified substance(s)

Amine aromatic, alkylated

No sensitizing effect (guinea pig);  
OECD 406

Alkyl amine

No sensitizing effect (guinea pig);  
OECD 406

hydroxyethyl-alkylamine

No sensitizing effect (guinea pig);  
OECD 406

## Germ Cell Mutagenicity

# SAFETY DATA SHEET

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



## Product name: ZF Lifeguard eFluid 2

ZF Aftermarket

Product:

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

### Carcinogenicity

Product:

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

### Reproductive toxicity

Product:

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

### Specific Target Organ Toxicity - Single Exposure

Product:

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

### Specific Target Organ Toxicity - Repeated Exposure

Product:

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

### Aspiration Hazard

Product:

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

### Other adverse effects:

No data available.

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## 12. Ecological information

### 12.1 Toxicity

Acute toxicity

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

Product:

Fish

Specified substance(s)

Hydrocarbons, low viscous

LC 50 (Fish, 96 h): > 750 mg/l

Amine aromatic, alkylated

LC 50 (Fish, 96 h): > 100 mg/l (OECD 203)

base oil, low viscous

LC 50 (Fish, 96 h): > 100 mg/l (OECD 203)

Alkyl amine

LC 50 (Fish, 96 h): 0,1 mg/l (OECD 203)

hydrocarbons, low viscous

LC 50 (Fish, 96 h): 2 - 5 mg/l

hydroxyethyl-alkylamine

LC 50 (Fish, 96 h): 0,1 mg/l (OECD 203)

## SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

### Aquatic Invertebrates

#### Specified substance(s)

Hydrocarbons, low viscous EC 50 (Water Flea, 48 h): 190 mg/l

Amine aromatic, alkylated EC 50 (Daphnia magna): 51 mg/l (OECD 202)

Alkyl amine EC 50 (Water Flea, 48 h): 0.043 mg/l (OECD 202)

hydroxyethyl-alkylamine EC 50 (Water Flea, 48 h): 0,48 mg/l (OECD 202)

### Chronic Toxicity Product:

Based on available data, the classification criteria are met.

### Fish

#### Specified substance(s)

base oil, low viscous NOEC (Fish, 14 d): > 1,000 mg/l

### Aquatic Invertebrates

#### Specified substance(s)

base oil, low viscous NOEC (Water Flea, 21 d): 10 mg/l (OECD 211)

Alkyl amine EC 10 (Water Flea, 21 d): 0.0107 mg/l (OECD 211)

hydroxyethyl-alkylamine EC 10 (Water Flea, 21 d): 0,279 mg/l (OECD 211)

### Toxicity to Aquatic Plants

#### Specified substance(s)

Hydrocarbons, low viscous EC 50 (Alga, 72 h): > 1.000 mg/l

Amine aromatic, alkylated EC 50 (72 h): > 100 mg/l (OECD 201)

base oil, low viscous NOEC (Alga, 72 h): > 100 mg/l (OECD 201)

Alkyl amine EC 50 (Alga, 72 h): 0,0538 mg/l (OECD 201)  
NOEC (Alga, 72 h): 0,0156 mg/l

hydrocarbons, low viscous EC 50 (Alga, 72 h): 1 - 3 mg/l (OECD 201)

## SAFETY DATA SHEET

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



### Product name: ZF Lifeguard eFluid 2

ZF Aftermarket

hydroxyethyl-alkylamine

EC 50 (Alga, 72 h): 0,107 mg/l (OECD 201)

EC 10 (Alga, 72 h): 0,0092 mg/l (OECD 201)

#### 12.2 Persistence and Degradability

Biodegradation

Product:

Not applicable for mixtures

Specified substance(s)

Amine aromatic, alkylated

Not readily degradable.

Alkyl amine

63 % (28 d, OECD 301D) Readily biodegradable

hydrocarbons, low viscous

58 % (28 d)

hydroxyethyl-alkylamine

> 60 % (28 d, OECD 301B) Readily biodegradable

#### 12.3 Bioaccumulative potential

Product:

Not applicable for mixtures

#### 12.4 Mobility in soil

Product:

Not applicable for mixtures

#### 12.5 Results of PBT and vPvB assessment

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

#### 12.6 Other adverse effects

Harmful to aquatic life with long lasting effects.

#### Water Hazard Class (WGK):

WGK 2: significantly water-endangering.

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### 13. Disposal considerations

#### 13.1 Waste treatment methods

General information:

Dispose in accordance with all applicable regulations.

Disposal methods:

Discharge, treatment, or disposal may be subject to national, state, or local laws.

# SAFETY DATA SHEET

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



## Product name: ZF Lifeguard eFluid 2

ZF Aftermarket

List of Waste (LoW) Codes

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

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### 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:	--

#### 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.:	--
14.4 Packing Group:	--
14.5 Environmental hazards:	--
14.6 Special precautions for user:	--

#### IATA

14.1 UN Number:	--
14.2 UN 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 and the IBC Code: Not applicable.

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### 15. Regulatory information

## SAFETY DATA SHEET

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



### Product name: ZF Lifeguard eFluid 2

ZF Aftermarket

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

GB Regulations

The Ozone-Depleting Substances and Fluorinated Greenhouse Gases (Amendment etc.) (EU Exit) Regulations 2019: none

The Persistent Organic Pollutants (Amendment) (EU Exit) Regulations 2020: none

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

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### 16. Other information

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

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

- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H336 May cause drowsiness or dizziness.
- H351 Suspected of causing cancer.
- H361d Suspected of damaging the unborn child.
- H361f Suspected of damaging fertility.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

#### Other information:

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

## SAFETY DATA SHEET

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



**Product name: ZF Lifeguard eFluid 2**

ZF Aftermarket

"Substantially similar mixtures" -  
Expert Judgement

### **Disclaimer:**

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