



SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006

ZF Powerfluid Gear LS

Version number: 1

Issued: 2026-06-05

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

1.1. Product identifier

Trade name

ZF Powerfluid Gear LS

Article No.

AA02.885.930 AA02.885.942

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

Product type

Mixture.

Relevant identified uses

Lubricant.

Not suitable for use in

No uses advised against identified.

1.3. Details of the supplier of the safety data sheet

SDS created by

Global Division B Product Compliance Mgmt. System (BWC)

Supplier

ZF Aftermarket

Address

ZF Friedrichshafen AG

Obere Weiden 12

97424 Schweinfurt

Germany

Telephone

+49 9721 475 60

Email

msds.zf-aftermarket@zf.com

Web site

www.zf.com/contact

Contact person

Global Division B Product Compliance Mgmt. System (BWC)



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Email

msds.zf-aftermarket@zf.com

1.4. Emergency telephone number

(+49) 89 19 240; 112

Available outside office hours

Yes

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Hazardous to the aquatic environment — Chronic hazard category 3

Hazard statements

H412

Description

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

2.2. Label elements

Hazard statements

H412 Harmful to aquatic life with long lasting effects.

Supplemental hazard statements

EUH208 Contains amine phosphate. May produce an allergic reaction.

Precautionary statements

P273 Avoid release to the environment.

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2.3. Other hazards

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

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACH Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration $\geq 0,1\%$.

SECTION 3: Composition/information on ingredients**3.2. Mixtures**

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrases M factor acute M factor chronic	Specific concentration limits ATE	Note
amine phosphate	1471315-74-8 939-591-3 - -	1 - <5%	Aquatic Chronic 3	H412 - -		-
amine phosphate	- 931-384-6 01-2119493620-38 -	1 - <2.5%	Acute Tox. 4 - oral, Skin Sens. 1, Eye Dam. 1, Aquatic Chronic 2	H302, H317, H318, H411 - -		Eye Irrit. 2; H319: $\geq 50\%$ Skin Sens. 1B; H317: $\geq 9,39\%$
alkenyl amine, long-chain	1213789-63-9 627-034-4 - -	0.25 - <1%	Acute Tox. 4 - oral, Asp. Tox. 1, Skin Corr. 1B, Eye Dam. 1, STOT SE 3 - resp. tract irrit., STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1	H302, H304, H314, H318, H335, H373, H400, H410 - -		M (Acute)=10 M(Chronic)=10



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Product based on

Mixture containing severely refined base oils and additives.

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

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Instantly remove any clothing soiled by the product.

Inhalation

Supply fresh air, consult a doctor in case of discomfort.

Skin contact

Wash with soap and water.

Eye contact

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

Ingestion

Rinse mouth thoroughly.

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

May cause skin and eye irritation.

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

Get medical attention if symptoms occur.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

CO₂, fire extinguishing powder or fog like water spraying. Extinguish larger fires with alcohol resistant foam or spray water with suitable surfactant added.



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Unsuitable extinguishing media

Water with a full water jet.

5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

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

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Prevent from spreading (e.g. by binding or oil barriers). Avoid release to the environment. Environmental manager must be informed of all major spillages. Prevent further leakage or spillage if safe to do so. Do not allow to enter drainage system, surface or ground water.

6.3. Methods and 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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

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.



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7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

Not applicable.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

Occupational exposure limits: No exposure indices known.

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 air-borne levels to an acceptable level.

General information: 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.

Personal Protective Equipment Symbols



Eye / face protection

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

Hand protection

Material: Nitrile butyl rubber (NBR).

Min. Breakthrough time: ≥ 480 min

Recommended thickness of the material: ≥ 0.38 mm.

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



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Other skin protection

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.

Environmental exposure controls

No data available.

Other

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 foot-wear that cannot be cleaned.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

Brown.

Odour

Characteristic.

Melting point / freezing point

Not determined.

Boiling point or initial boiling point and boiling range

Not determined.

Flammability

Not determined.

Lower and upper explosion limit

Not applicable for mixtures.

Flash point

220 °C



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Auto-ignition temperature

Not determined.

Decomposition temperature

Not determined.

pH

substance/mixture is non-soluble (in water).

Kinematic viscosity

190 mm²/s (40 °C)

Solubility

No data available

Water solubility

Insoluble (water); No data available (other solvents).

Partition coefficient n-octanol/water

Not applicable for mixtures.

Vapour pressure

Not applicable for mixtures.

Density and/or relative density

0.90 g/ml (15 °C)

Relative vapour density

Not applicable for mixtures.

Evaporation Rate

Not applicable for mixtures.

Explosive properties

Value not relevant for classification.

Oxidising properties

Value not relevant for classification.

Particle characteristics

Not applicable.

9.2. Other information

No data available.



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SECTION 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 oxidising substances, strong acids and strong bases.

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

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

Acute toxicity

ATEmix: 30,892 mg/kg

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

Product / Sub-stance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Test animals	Method / Guideline
alkenyl amine, long-chain -	LD50	1689 mg/kg	Oral.	Rat.	OECD 401

Skin corrosion/irritation

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

Serious eye damage/irritation

The classification of this product is based all or in part on test data



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Respiratory or skin sensitisation

Experimental data has shown that the concentration of potentially sensitizing components present in this product does not induce skin sensitization.

Germ cell mutagenicity

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

Carcinogenicity

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

Reproductive toxicity

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

11.2. Information on other hazards**Endocrine disrupting properties**

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

SECTION 12: Ecological information**12.1. Toxicity****Acute toxicity**

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

Acute fish toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
amine phosphate -	LC50	24 mg/l	96 hr.	Fish.
alkenyl amine, long-	LC50	0.06 mg/l	96 hr.	Fish.

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Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
chain -				

Acute algae toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
amine phosphate -	EC50	> 100 mg/l	72 hr	Algae.
alkenyl amine, long-chain -	EC50	0.12 mg/l	72 hr	Algae.
alkenyl amine, long-chain -	EC10	0.029 mg/l	72 hr	Algae.

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
amine phosphate -	EC50	91.4 mg/l	48 hr.	Water Flea.
alkenyl amine, long-chain -	EC50	0.011 mg/l	48 hr.	Water Flea.

Chronical toxicity

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

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
amine phosphate -	NOEC	0.12 mg/l	21 days	Water Flea.
alkenyl amine, long-	NOEC	0.013 mg/l	21 days	Water Flea.



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Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
chain -				

12.2. Persistence and degradability

Not applicable for mixtures.

12.3. Bioaccumulative potential

Not applicable for mixtures.

12.4. Mobility in soil

Mobility

Not applicable for mixtures.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration $\geq 0,1\%$.

12.6. Endocrine disrupting properties

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

12.7. Other adverse effects

The classification of this product is based all or in part on test data

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose in accordance with all applicable regulations.

Disposal methods: Do not empty into drains; dispose of this material and its container in a safe way. When storing used products, ensure that the waste categories and mixing instructions are observed.

Waste code	Waste description
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils

Please note - an asterisk (*) next to a code denotes that it is HAZARDOUS WASTE.



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SECTION 14: Transport information

14.1. UN number

Not regulated.

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

Not Regulated.

IMDG proper shipping name

Not Regulated.

IATA proper shipping name

Not Regulated.

14.3. Transport hazard class(es)

Label

Not regulated.

ADR / RID Class

Not regulated.

IMDG Class

Not regulated.

IATA Class

Not regulated.

ADN Class

Not regulated.

14.4. Packing group

Not regulated.

14.5. Environmental hazards

No.

IMDG Marine Pollutant

Not regulated.

14.6. Special precautions for user

Not regulated.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.



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SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 2024/590 on substances that deplete the ozone layer, ANNEX I REGULATED SUBSTANCES: None.

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

Prior Informed Consent (PIC) (649/2012/EU): None.

National regulations

No data available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Phrase meaning

Aquatic Chronic 3 - Hazardous to the aquatic environment — Chronic hazard category 3

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4

Asp. Tox. 1 - Aspiration hazard, hazard category 1

Skin Corr. 1B - Skin corrosion, hazard category 1B

Eye Dam. 1 - Serious eye damage, hazard category 1

STOT SE 3 - resp. tract irrit. - Specific Target Organ Toxicity — Single exposure, hazard category 3 - respiratory tract irritation

STOT RE 2 - Specific Target Organ Toxicity — Repeated exposure, hazard category 2

Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1

Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1

Skin Sens. 1 - Skin sensitisation, hazard category 1

Aquatic Chronic 2 - Hazardous to the aquatic environment — Chronic hazard category 2

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.

H335 May cause respiratory irritation.

H373 May cause damage to organs through prolonged or repeated exposure

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.

EUH208 Contains amine phosphate. May produce an allergic reaction.



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Other

Additional information

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

Disclaimer :

To the best of our knowledge, the information contained herein is accurate. However, neither the abovenamed supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.