

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200



Trade name: ZF LifeguardFluid 8

ZF Aftermarket

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

1.1 Product identifier

Trade name: ZF LifeguardFluid 8

Product code: S671.090.310
S671.090.311
S671.090.312
S671.090.313

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 GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data this substance / mixture does not meet the classification criteria.

2.2 GHS label elements

Hazard pictograms: No Hazard Symbol required

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Signal word:	No signal word
Hazard statements	
PHYSICAL HAZARDS:	Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:	Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:	Not classified as an environmental hazard under GHS criteria.
Precautionary statements:	
Prevention:	No precautionary phrases.
Response:	No precautionary phrases.
Storage:	No precautionary phrases.
Disposal:	No precautionary phrases.

2.3 Other hazards

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.

The classification of this material is based on OSHA HCS 2012 criteria.

Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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) DMSO-extract, according to IP346.
Classification based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

* contains one or more of the following CAS-numbers:

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64742-53-6, 64742-54-7, 64742-55-8,
64742-56-9, 64742-65-0, 68037-01-4,
72623-86-0, 72623-87-1, 8042-47-5,
848301-69-9, 68649-12-7, 151006-60-9,
163149-28-8, 64741-88-4, 64741-89-5.**Hazardous components**

Chemical name	Synonyms	CAS-No.	Concentration [% w/w]
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *		Not Assigned	0 - 90
Alkyl acetamid		Not Assigned	1 - 3
Calcium alkaryl sulpho-nate	Benzene, polypropene derivs., sulfonated, calcium salts	75975-85-8	0.1 - 0.99
Ethoxylated amine	Ethanol, 2,2'-iminobis-, N-tallow alkyl derivs	61791-44-4	0.01 - 0.1

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.

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.

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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:

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:

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 (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



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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

Avoid contact with skin and eyes.

6.2 Environmental precautions

Environmental precautions: Local authorities should be advised if significant spillages cannot be contained.

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

6.4 Additional advice

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

Technical measures 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 circum-

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stances 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.

Avoidance of contact

Strong oxidising agents.

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

Further information on storage stability

Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers.
Store at ambient temperature.

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.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters /	Basis

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			Permissible concentration	
Oil mist, mineral	Not Assigned	TWA	5 mg/m ³	OSHA Z-1
Oil mist, mineral	--	TWA (Inhalable particulate matter)	5 mg/m ³	ACGIH

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 Analytical 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.

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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

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 the combination of organic gases and vapours and particles [Type A/Type P boiling point >65°C (149°F)].

Eye protection:

If material is handled such that it could be splashed into eyes, protective eyewear is recommended.

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.

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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:

Skin protection is not ordinarily required beyond standard work clothes. It is good practice to wear chemical resistant gloves.

Thermal hazards:

Not applicable

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

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9.1 Information on basic physical and chemical properties

Appearance:	Liquid at room temperatur
Colour:	Blue-green
Odour:	Slight hydrocarbon
Odour Threshold:	Data not available
pH:	Not applicable

Pour point	-42 °C / -44 °F	ASTM D97
Initial boiling point and boiling range	> 280 °C / 536 °F	estimated value(s)
Flash point	206 °C / 403 °F	ASTM D92 (COC)
Evaporation rate	Data not available	
Flammability (solid, gas)	Data not available	
Flammability (liquids)	Not classified as flammable but will burn.	
Upper explosion limit /upper flammability limit	Typical 10 %(V)	
Lower explosion limit / Lower flammability limit	Typical 1 %(V)	
Vapour pressure	< 0.5 Pa (20 °C / 68 °F)	estimated value(s)
Relative vapour density	> 1	estimated value(s)

Relative density	0,846 (15 °C / 59 °F)	
Density	846 kg/m ³ (15 °C / 59 °F)	ISO 12185
Solubility(ies)		
Water solubility	negligible	
Solubility in other solvents	Data not available	



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Partition coefficient: n-octanol/water	Pow: > 6	(based on information on similar products)
Auto-ignition temperature	> 320°C / 608 °F	
Decomposition temperature	Data not available	
Viscosity, dynamic	Data not available	
Viscosity, kinematic	26 mm ² /s (40°C / 104.0 °F) 5,6 mm ² /s (100°C / 212 °F)	ASTM D445
Explosive properties	Not classified	
Oxidizing properties	Data not available	
Conductivity	This material is not expected to be a static accumulator	

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

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- | | |
|---|---|
| 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).
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Information on likely routes of exposure	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
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Acute toxicity

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

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

Respiratory or skin sensitisation

Product:

Remarks: Not a skin sensitiser. Based on available data, the classification criteria are not met.

Components:

Alkyl acetamide:

Remarks: Experimental data has shown that the concentration of potentially sensitising components present in this product does not induce skin sensitisation. May cause an allergic skin reaction in sensitive individuals.

Calcium alkaryl sulphonate:

Remarks: May cause an allergic skin reaction in sensitive individuals.

Germ cell mutagenicity

Product:

Genotoxicity in vivo:

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.

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

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

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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 considered 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.

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 representative of the product as a whole, rather than for individual component(s).

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity):

Remarks: LL/EL/IL50 >10 <= 100 mg/l
Harmful

Toxicity to daphnia and other aquatic invertebrates (Acute toxicity)

Remarks: LL/EL/IL50 >10 <= 100 mg/l
Harmful

Toxicity to algae (Acute toxicity)

Remarks: LL/EL/IL50 >10 <= 100 mg/l
Harmful

Toxicity to fish (Chronic toxicity)

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



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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) Remarks: Based on available data, the classification criteria are not met.

Toxicity to microorganisms (Acute toxicity) Remarks: LL/EL/IL50 >10 <= 100 mg/l Harmful

Components:

Ethoxylated amine:

M-Factor (Acute aquatic toxicity) 10

M-Factor (Chronic aquatic toxicity) 1

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., Persistent per IMO criteria., International Oil Pollution Compensation (IOPC) Fund definition: "A non-persistent oil is oil, which, at the time of shipment, consists of hydrocarbon fractions, (a) at least 50% of which, by volume, distills at a temperature of 340°C (645°F) and (b) at least 95% of which, by volume, distils at a temperature of 370°C (700°F) when tested by the ASTM Method D-86/78 or any subsequent revision thereof."

12.3 Bioaccumulative potential

Product:

Bioakkumulation

Remarks: Contains components with the potential to bioaccumulate.

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.

12.5 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.

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Causes physical fouling of aquatic organisms.

13. Disposal considerations

13.1 Disposal methods

Waste from residues:

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.

Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

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

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Remarks:

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14 Transport information

National Regulations:

US Department of Transportation Classification (49 CFR Parts 171-180)

Not regulated as a dangerous good

International Regulations:

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

Special precautions for user

Remarks

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

15. Regulatory information

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Phosphoric acid	7664-38-2	5000	*
Benzene	71-43-2	10	**
2-methylpropan-1-ol	78-83-1	5000	

*: Calculated RQ exceeds reasonably attainable upper limit.

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Calculated RQ exceeds reasonably attainable upper limit. Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA., The components with RQs are given for information.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
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SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Hazards

No SARA Hazards

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Water Act

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Phosphoric acid	7664-38-2	0.0837 %
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US State Regulations

Pennsylvania Right To Know

Distillates (petroleum), hydrotreated heavy paraffinic: 64742-54-7

Phosphoric acid: 7664-38-2

Diphenylamine: 122-39-4

Pennsylvania Right To Know

Distillates (petroleum), hydrotreated light paraffinic: 64742-55-8

Distillates (petroleum), hydrotreated heavy paraffinic: 64742-54-7

Distillates (petroleum), solvent-dewaxed heavy paraffinic: 64742-65-0

Distillates (petroleum), solvent-dewaxed light paraffinic; Baseoil – unspecified: 64742-56-9

Phosphoric acid: 7664-38-2

Distillates (petroleum), hydrotreated light: 64742-47-8

methyl methacrylate: 80-62-6

Normal Butyl Alcohol: 71-36-3

Diphenylamine: 122-39-4

California Prop. 65

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WARNING! This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

WARNING: This product can expose you to chemicals including Distillates (petroleum), hydrotreated light, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

Distillates (petroleum), hydrotreated light paraffinic: 64742-55-8

Distillates (petroleum), hydrotreated heavy paraffinic: 64742-54-7

Distillates (petroleum), solvent-dewaxed heavy paraffinic: 64742-65-0

Distillates (petroleum), solvent-dewaxed light paraffinic: 64742-56-9

Baseoil – unspecified

California Permissible Exposure Limits for Chemical Contaminants

Distillates (petroleum), hydrotreated light paraffinic: 64742-55-8

Distillates (petroleum), hydrotreated heavy paraffinic: 64742-54-7

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:

REACH: Not established.

TSCA: All components listed.

DSL: Notified with Restrictions.

16. Other information

Further information

NFPA Rating (Health, Fire, Reactivity) 0, 1, 0

Full text of other abbreviations

ACGIH USA. ACGIH Threshold Limit Values (TLV)

OSHA Z-1 USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

ACGIH / TWA 8-hour, time-weighted average

OSHA Z-1 / TWA 8-hour time weighted average

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.

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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
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

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200



Trade name: ZF LifeguardFluid 8

ZF Aftermarket

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 V = 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
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

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).

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