



Product name: ZF LifeguardFluid 9

ZF Aftermarket

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

1.1 Product identifier

Trade name: ZF LifeguardFluid 9

Product code: AA01.500.001

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

Use of the Substance/Mixture Transmission oil.

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

1.3 Details of the supplier of the safety data sheet

ZF Friedrichshafen AG
ZF Aftermarket
Obere Weiden 12
97424 Schweinfurt
Germany
+49 9721 475 60
www.zf.com/contact

1.4 Emergency telephone number

24/7h Emergency telephone number:

+49 (0)89 19240 Information in German and English

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

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

2.2 GHS label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms: No Hazard Symbol required

Signal word: No signal word

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Hazard statements	
PHYSICAL HAZARDS:	Not classified as a physical hazard according to CLP criteria.
HEALTH HAZARDS:	Not classified as a health hazard under CLP criteria.
ENVIRONMENTAL HAZARDS:	Not classified as environmental hazard according to CLP criteria.
Precautionary statements:	
Prevention:	No precautionary phrases.
Response:	No precautionary phrases.
Storage:	No precautionary phrases.
Disposal:	No precautionary phrases.
Sensitising components:	Contains alkyl acetamide. Contains calcium sulphonate. May produce an allergic reaction.

2.3 Other hazards

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

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Used oil may contain harmful impurities.

Not classified as flammable but will burn.

3. Composition/information on ingredients

3.2 Mixtures

Chemical nature:	Synthetic base oil and additives. Highly refined mineral oil. The highly refined mineral oil contains <3% (w/w) DMSO extract, according to IP346. The highly refined mineral oil is only present as additive diluent. Classification based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).
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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),
 68649-12-7 (01-2119527646-33),
 151006-60-9 (01-2119523580-47),
 163149-28-8 (01-2119543695-30).

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)
Alkyl acetamide	Not Assigned 471-920-1 01-0000019770-68	Skin Sens.1B; H317	1 - 3
Benzenesulfonic acid, 4-(branched alkyl derivs.) and benzenesulfonic acid, 4-(linear alkyl dervis.), calcium salts	Not Assigned	Skin Sens.1B; H317	0,1 - 0,99
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	Not Assigned	Asp. Tox.1; H304	0 - 90
2,2'(long-chain alkylimino)diethanol(EUonly)	1218787-32-6 620-540-6 01-2119510877-33	Acute Tox. 4; H302 Skin Corr. 1C; H314 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 1	0.025 - 0.1

For explanation of abbreviations see section 16.



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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.
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:	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



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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 clothing approved to relevant Standards (e.g. Europe: EN469).

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

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

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

6.2 Environmental precautions



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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. 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 Section 8 of this Safety Data Sheet.
For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

7. Handling and storage

7.1 Precautions for safe handling

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 circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

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.



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

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".

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. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product. 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

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Oil mist, mineral	Not Assigned	TWA (inhalable fraction)	5 mg/m ³	US. ACGIH Threshold Limit Values
Oil mist, mineral		TWA (Inhalable particulate matter)	5 mg/m ³	ACGIH

Biological occupational exposure limits

No biological limit allocated.

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:

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

Approved to EU Standard EN166.



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**Hand protection
Remarks:**

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:

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

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

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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

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: liquid
Colour: Blue-green
Odour: Data not available
Odour Threshold: Data not available
pH: Not applicable

Pour point	<= -42 °C	Method DIN ISO 3016
Melting / freezing point	Data not available	
Initial boiling point and boiling range	> 280 °C	estimated value(s)
Flash point	>= 185 °C	Method: 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)	

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Vapour pressure	< 0,5 Pa (20 °C) estimated value(s)	
Relative vapour density	> 1 estimated value(s)	
Relative density	0,846 - 0,852 (15 °C)	
Density	846 - 852 kg/m ³ (15 °C)	Method: ISO 12185
Solubility(ies)		
Water solubility	negligible	
Solubility in other solvents	Data not available	
Partition coefficient: n-octanol/water	log Pow: > 6(based on information on similar products)	
Auto-ignition temperature	> 320 °C	
Decomposition temperature	Data not available	
Viscosity		
Viscosity, dynamic	Data not available	
Viscosity, kinematic	5,4 - 5,8 mm ² /s (100 °C) 26 mm ² /s (40 °C)	Method: ASTM D445
Explosive properties	Not classified	
Oxidizing properties	Data not available	

9.2 Other information

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Conductivity: This material is not expected to be a static accumulator.

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**
Materials to avoid: Strong oxidising agents.
- 10.6 Hazardous decomposition products:** No decomposition if stored and applied as directed.
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11. Toxicological information

11.1 Information on toxicological effects

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

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:

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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 respiratory and skin sensitisation: Not a 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.

Germ cell mutagenicity

Product:

Genotoxicity in vivo:

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

Germ cell mutagenicity- Assessment:

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

Carcinogenicity

Product:

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

Carcinogenicity – Assessment:

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

Material	GHS/CLP Carcinogenicity Classification
Highly refined mineral oil	No carcinogenicity classification



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Reproductive toxicity

Product:

Effects on fertility

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

Reproductive toxicity – Assessment

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

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

11.2 Information on other hazards

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.

Remarks

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).



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12. Ecological information

12.1 Toxicity

Product: Toxicity to fish: Remarks: LL/EL/IL50 >10 <= 100 mg/l Harmful

Toxicity to daphnia and other aquatic invertebrates: Remarks: LL/EL/IL50 >10 <= 100 mg/l Harmful

Toxicity to algae/aquatic plants: 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.

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

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

Components:
2,2'(long-chain alkylimino)diethanol(EUonly):
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, distills 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

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Product:
Bioaccumulation

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 Results of PBT and vPvB assessment

Product:
Assessment

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

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

Product:
Additional ecological information

Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential. Product is a mixture of non-volatile components, which will not be released to air in any significant quantities under normal conditions of use. Poorly soluble mixture. Causes physical fouling of aquatic organisms. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

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.
Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Do not dispose into the environment, in drains or in water courses

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Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

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
Waste catalogue

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

Remarks:

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

14 Transport information

14.1 UN number

ADN	Not regulated as a dangerous good
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



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14.2 Proper shipping name

ADN	Not regulated as a dangerous good
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

ADN	Not regulated as a dangerous good
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

ADN	Not regulated as a dangerous good
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

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good

14.6 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.
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14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

15. Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Not applicable
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REACH - List of substances subject to authorization (Annex XIV)

Product is not subject to Authorisation under REACH.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Volatile organic compounds:

Volatile organic compounds (VOC) content: 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. 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.

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The components of this product are reported in the following inventories:

REACH Not established.
TSCA: All components listed.

15.2 Chemical safety assessment

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

16. Other information

Full text of H-Statements

- || 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.
- || H400 Very toxic to aquatic life.
- || H410 Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

- || Acute Tox. Acute toxicity
- || Aquatic Acute Short-term (acute) aquatic hazard
- || Aquatic Chronic Long-term (chronic) aquatic hazard
- || Asp. Tox. Aspiration hazard
- || Skin Corr. Skin corrosion
- || Skin Sens. Skin sensitisation
- || ACGIH USA. ACGIH Threshold Limit Values (TLV)
- || ACGIH / TWA 8-hour, time-weighted average

Abbreviations and Acronyms:

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA -

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European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European

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ZF Aftermarket

Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice:

Provide adequate information, instruction and training for operators.

Other information:

No Exposure Scenario annex is attached to this safety data sheet. It is a non-classified mixture containing hazardous substances as detailed in Section 3; relevant information from Exposure Scenarios for the hazardous substances contained have been integrated into the core sections 1-16 of this SDS.

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).

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