



Material Safety Data Sheet

Product name :

ELF FRELUB DOT 4

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MSDS number : 110166-05

Version : 2

Date : 12/02/2008

Supersedes MSDS dated : 22/03/2004

PRODUCT LABELS

LABELLING (standard or EU) : Not Concerned

R-phrases : None

S-phrases : None

TRANSPORT LABELLING : Not Applicable

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY UNDERTAKING

Name of the product : **ELF FRELUB DOT 4**
Code No : U6223
Product application : Brake fluid
Supplier : Total Oil Asia-Pacific Pte. Ltd.
10 Pandan Avenue Singapore 609385
Tel : (65) 6266 2800
Fax: (65) 6266 3800

2. COMPOSITION/INFORMATION OF INGREDIENTS

PREPARATION

Chemical nature : Mixture of polyalkylene glycol monalkyl ethers, their ester derivatives and polyalkylene glycols

Additional information : Contains corrosion inhibitor and anti oxidant components

3. HAZARD IDENTIFICATION

Health effects : Under normal conditions of use, the product holds no danger of intoxication. Slightly irritating to respiratory system. Moderately irritating to eyes.

Environmental impact : Do not discard this product into the environment

Physical and chemical hazards : No specific risk of fire or explosion under normal conditions of use but will burn

4. FIRST AID MEASURES

IN CASE OF SERIOUS OR PERSISTENT MANIFESTATIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE

Inhalation : Inhalation of heavy concentrations of vapour, fumes or spray, may cause mild irritation of the throat.

Transport the person into fresh air, keep warm and allow to rest.

Skin contact : Immediately remove all soiled or stained clothing.

Wash the affected area immediately and repeatedly with soap and water.

Eye contact : Keep eyes open and rinse immediately and repeatedly with water for at least 15 minutes.

Ingestion : Possible risk of vomiting and diarrhoea.

Do not induce vomiting to avoid the risk of aspiration into the respiratory tract.

Give nothing to drink.

Aspiration : If the product is believed to have entered the lungs (in case of vomiting, for example), take the person to hospital for immediate care.



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5. FIRE FIGHTING MEASURES

Flash Point :	See heading 9
Fire extinguishers media :	
- suitable :	Foam, carbon dioxide (CO ₂), dry chemical powder.
- not recommended :	Do not use water jet (stick jets) for extinguishing fire since they could help to spread the flames.
Specific hazards :	Incomplete combustion and thermolysis produce gases of varying toxicity such as CO, CO ₂ , various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled. Vapours can build explosive mixtures with air. Vapours are heavier than air and may spread on the ground to source of ignition.
Protective measures for firefighter :	Insulated breathing apparatus must be worn in confined premises with heavy concentrations of fumes and gases.
Other :	The combustion residues and contaminated water for fire fighting have to be disposed according to the local regulations.

6. ACCIDENTAL RELEASE MEASURES

See sections 8 and 13	
Personnel protection :	Ensure good ventilation. Remove sources of ignition. Do not smoke.
After spillage / leakage :	
- on the soil :	Surfaces on which the product has been spilled may become slippery. Do not allow the product to enter sewers or rivers or contaminate the soil. Recover with mechanical means such as pumps and skimmers.
- on water :	Floating absorbent material, then mechanical recovery. If the product is spilled in a river or in the sewers, notify the authorities of the possible presence of surface effluent.
Spill cleanup methods :	
- Recovery	Contain and collect the spilled product, sand the surfaces concerned if necessary. Contain and collect the spilled product with sand or any other inert absorbent material. In the event of a major spill, inform the competent authorities if the situation cannot be brought under control rapidly and efficiently.
- Elimination :	Dispose of waste in compliance with regulations. Avoid discharge of the material in a stream or a sewer or cause ground contamination.

7. HANDLING AND STORAGE

HANDLING :	
- Prevention of user exposure :	Ventilate extensively if the formation of vapour, fumes, mist or aerosol is a risk. Make all the necessary arrangement in order to reduce exposure risk, notably to products in use or to wastes. Keep away from combustive substances; keep away from food and beverages.
- Prevention of fire and explosion :	Empty containers may contain flammable or explosive vapours. There is a fire hazard associated with rags, papers or any other material used to remove spills which become soaked with product. Avoid accumulation of these : they are to be disposed off safely after use.



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- Precautions : Avoid static electricity build up with connection to earth.
Set up machinery and equipment so as to avoid the risk of accidental spills or splashes onto hot machine parts and electrical contacts (on joints failure, for example).

STORAGE :

- Technical measures : Make the necessary arrangements to prevent water and soil pollution.

- Storage precautions :

- Suitable : Store at room temperature, protected against contact with water and moisture, and away from any sources of ignition.
Keep containers closed when not in use.

- To be avoided: Do not store exposed to the elements.

- Incompatible products : Dangerous reaction with strong oxidizing agents.

- Packaging materials :

- Recommended : Use only hydrocarbon resistant containers, joints, pipes etc...
Keep in original container if possible.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Technical measures : Use the product in a properly ventilated atmosphere.
When working in enclosed place (tanks, reservoirs,..), make sure that atmosphere is not suffocating and/ or wear recommended equipment.

Occupational exposure limit :
- oil mist : 10mg/m³, for 15 minutes
- oil mist : 5mg/m³, for 8 hours

Hand protection : Impermeable hydrocarbon-proof gloves.
Recommended material: nitrile, neoprene.
The break through times of the same type of glove of different manufacturers can be very different - even if the layer thickness is similar. Therefore the break through times have to be found out from the manufacturer of the protective gloves themselves.
The demands on the gloves are determined by the conditions in practice (e.g. multiple use, mechanical load, temperature, strength and duration of exposition). Before choosing suitable gloves, it is recommended that the user tests the gloves.

Eye protection : Goggles, in case of splashing.

Skin and body (other than the hands) protection : As required, wear a face mask, hydrocarbon-proof clothing, and safety boots (when handling drums).
Don't wear ring, watches or anything similar which can retain the product and may give rise to skin conditions.

Hygienic work practices : Avoid prolonged and repeated contact with the skin, especially with used or waste product.
Immediately remove all soiled or stained clothing.
If the product comes into contact with the skin, wash the affected area immediately and repeatedly with soap and water.
Use no abrasives, solvents or fuels.
Do not use cloths stained with the product to dry hands.
Do not put the product-soaked rags in the pockets of working clothes.
Do not eat, drink or smoke while handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES



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Appearance :	Liquid
Colour :	Amber or as dyed.
Odour :	Ethereal
Density/Specific Gravity :	about 1.030 to 1.070 kg/m ³ at 15°C
pH :	7-11.5 as 50% volume aqueous ethanol solution
Boiling Point :	> 260°C
Flash point :	>100°C (ASTM D92)
Auto-ignition temperature :	>250°C (ASTM E 659)
Comments on auto-ignition temperature :	This temperature may be significantly lower under particular conditions (slow oxidation on finely divided materials...).
Comments on explosivity :	Not applicable
Solubility :	
- in water :	Insoluble and immiscible.
- in organic solvents :	Soluble in many common solvents.
Viscosity :	Kinematic viscosity at 100°C : about >1.5 mm ² /s

10. STABILITY AND REACTIVITY

Stability :	The product is stable under normal storage, handling and use temperatures.
Condition to avoid :	Exposure to water vapour
Materials to avoid :	Mineral oils. Water vapour
Hazardous decomposition products :	Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

Basic for Assessment :	Information given is based on product testing, and/or similar products, and/or components.
- Acute oral toxicity :	Low toxicity: LD50 >2000 mg/l, Rat
- Acute dermal toxicity :	Low toxicity: LD50 >2000 mg/l, Rat
- Acute inhalation toxicity :	Expected to be of low toxicity: LC50 >5 mg/l per 4 hours, Rat
- Skin irritation :	Not irritating to skin
- Eye irritation :	Moderately irritating to eyes
- Respiratory irritation :	Inhalation of vapours or mists may cause irritation to the respiratory system
- Sensitization :	Not a skin sensitiser
- Repeated dose toxicity :	Low systemic toxicity on repeated exposure. Respiratory system: caused breathing difficulty in animals
- Carcinogenicity :	Not expected to be carcinogenic
- Mutagenicity :	No evident of mutagenic activity
- Reproductive and developmental toxicity :	Data not available



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12. ECOLOGICAL INFORMATION

Acute Toxicity

- fish : Expected to have low toxicity: LC/EC/IC50 > 100mg/l
- Aquatic invertebrates : Expected to have low toxicity: LC/EC/IC50 > 1000mg/l
- Algae : Expected to have low toxicity: LC/EC/IC50 > 100mg/l
- Micro-organism : Expected to have low toxicity: LC/EC/IC50 > 1000mg/l

Mobility :

- Soil : If product enters soil, it will be highly mobile and may contaminate groundwater
- Water : Dissolves in water

Persistence/degradability : Expected to be inherently biodegradable

Bioaccumulation : Does not have the potential to bioaccumulate significantly

13. DISPOSAL INFORMATION

Material disposal : Recover or recycle if possible. 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. Remove all packaging for recovery or waste disposal.

Disposal of contaminated packaging : Proceed in compliance with the prevailing regulations, preferably to a recognised collector or contractor

Local Legislation : Disposal should be in accordance with applicable regional, national and local laws and regulations

14. TRANSPORT INFORMATION

Not concerned by the transport regulatory below

Road (ADR) / Rail (RID) :

Class : Not restricted for transport

Transport by barge (ADNR) :

Marine (IMO-IMDG) :

Air (ICAO / IATA) :

15. REGULATORY INFORMATION

Risk phrase(s) : None

Safety phrase(s) : None

EU directives : Hazardous preparations directive 1999/45/EC modified (Directive 2001/60/EC)

Social Security code : Art. L 461-6, Art. D461-1, appendix A, No. 601.
Table of occupational illnesses and diseases No. 36

labor code : Art. R 241-50, decree of 07.11.1977

16. OTHER INFORMATION

Explanations of R-phrases in section 2 : R22 -- Harmful if swallowed
R36/38 -- Irritating to eyes and skin



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R38 -- Irritating to skin

R41 -- Risk of serious damage to eye

R43 -- May cause sensitisation by skin contact

R51/53 -- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

R53 -- May cause long-term adverse effects in aquatic environment

This Safety Data Sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of our knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his or her activity. The user bears sole liability for the precautions required when using the product. The regulatory texts herein are intended to aid the user to fulfil his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.
