



SAFETY DATA SHEET

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

Product name: FERODO Brake Fluid

Product No.: LHM and LHM Plus (LHM+)

Supplier:

Federal Mogul Corporation (BE)
Central Distribution Centre
Prins Boudewijnlaan 7
B-2550 Kontich, Belgium

Emergency telephone:

24hr EP (INFOTRAC): 1-800-535-5053
International: (001) 352-323-3500

Intended use: Hydraulic fluid in the central hydraulic systems.

Contact person:

Product Manager GA Europe, Middle-East and Africa
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2 HAZARDS IDENTIFICATION

The product has been classified according to the legislation in force.

Classification: | R66 | N; R51/53 |

The full text for all R-phrases is displayed in Section 16.

Potential health effects

Inhalation: Unlikely to be hazardous by inhalation because of the low vapour pressure of the substance at ambient temperature. Inhalation of oil mist or vapours formed during heating of the product will irritate the respiratory system and provoke coughing. Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection in the respiratory tract.

Eye contact: May cause minor irritation on eye contact.

Skin contact: May cause skin irritation. Defats the skin. Prolonged and repeated contact with used oil may dry skin and cause redness. Prolonged or repeated contact with used oil may cause serious skin diseases, such as dermatitis. The harmful effects may increase in used oil.

Ingestion: May cause discomfort if swallowed. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

Other health effects: Repeated exposure may cause skin dryness or cracking. Prolonged and repeated contact with used oil may cause serious skin diseases, such as dermatitis and skin cancer.

Potential physical / chemical effects: This product is not flammable.

Environment: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3 COMPOSITION/INFORMATION ON INGREDIENTS

General information: The product is a mixture.

Chemical name	EC No.	CAS-No.	Concentration *	Classification	Notes
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	276-737-9	72623-86-0	30 - 60%	Xn;R65	L
Distillates (petroleum), hydrotreated middle	265-148-2	64742-46-7	10 - 30%	Xn;R65, R66, N;R51/53	-
Dithiophosphoric Acid ester	-	-	0.1 - 1%	N;R51/53	-
Sterically hindered phenol	-	-	0.1 - 1%	N;R51/53	-

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

Note L: The classification as a carcinogen does not apply as it can be shown that the substance contains less than 3 % DMSO extract as measured by IP 346.

The full text for all R-phrases is displayed in Section 16.

4 FIRST-AID MEASURES

Inhalation: Move injured person into fresh air and keep person calm under observation. In case of persistent throat irritation or coughing or after inhalation of oil mist: Seek medical attention and bring along these instructions.

Eye contact: Flush thoroughly with water. If irritation occurs, get medical assistance.

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists.

Ingestion: Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Lay on the side. Get medical attention immediately.

Note to physician: Treat symptomatically.

5 FIRE-FIGHTING MEASURES

Extinguishing media: Water spray, dry powder or carbon dioxide.

Inappropriate extinguishing media: Water jet.

Special fire fighting procedures: Use standard firefighting procedures and consider the hazards of other involved materials. Containers close to fire should be removed immediately or cooled with water.

Unusual fire & explosion hazards: During fire, gases hazardous to health may be formed.

Hazardous combustion products: Carbon dioxide, Carbon monoxide, Nitrogen oxides, Sulfur oxides

Protective measures: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions: Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Avoid inhalation of oil mist and contact with skin and eyes. Avoid prolonged and repeated contact with oil, particularly used oil. Wear suitable protective clothing. See Section 8 for personal protective equipment.

Spill cleanup methods: Remove sources of ignition. Absorb spillage with oil-absorbing material. Clean contaminated area with oil-removing material. Collect in containers and seal securely. For waste disposal, see section 13.

Environmental precautions: Avoid discharge into drains, water courses or onto the ground.

Notification procedures: Inform authorities if large amounts are involved.

7 HANDLING AND STORAGE

Handling: Avoid inhalation of oil mist and contact with skin and eyes. Avoid prolonged and repeated contact with oil, particularly used oil. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets. Use work methods which minimise oil mist production. Observe good industrial hygiene practices.

Storage: Keep container tightly closed and dry. Keep container in a well-ventilated place. Keep away from heat, sparks and open flame. Store away from incompatible materials.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values: No exposure limits noted for ingredient(s).

Engineering controls: Provide adequate ventilation and minimise the risk of inhalation of vapours and oil mist.

Respiratory protection: In case of inadequate ventilation or risk of inhalation of oil mist, suitable respiratory equipment with combination filter (type A2/P2) can be used.

Eye protection: Risk of splashes: Wear approved safety goggles.

Hand protection: Wear suitable gloves. Nitrile gloves are recommended. Suitable gloves can be recommended by the glove supplier.

Skin protection: Wear appropriate clothing to prevent repeated or prolonged skin contact.

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 and protective equipment to remove contaminants.

Environmental exposure controls: Environmental manager must be informed of all major spillages.

9**PHYSICAL AND CHEMICAL PROPERTIES**

Physical state: Liquid
Colour: Bright green
Odour: Oil smell
Odour threshold: No data available.
pH: Not applicable
Melting point: <-50°C (-58°F)
Freezing point: No data available.
Boiling Point: 250°C (482°F) - 380°C (716°F)
Relative density: 0.83 (@ 20 °C (68 °F))
Vapour pressure: < 0.1 kPa @20°C
Vapour density (air=1): No data available.
Evaporation rate: No data available.
Volatile: No data available
Solubility in water: Insoluble
Solubility (other): Miscible with: Ethanol
Partition coefficient (n-octanol/water): > 3 (LogPow)
Viscosity: 18 cst @40°C (Kinematic)
Flash point: >110°C (230°F)
Autoignition temperature: >350°C (662°F)
Flammability limit - lower(%): 1 (Estimated)
Flammability limit - upper (%): 8 (Estimated)

10**STABILITY AND REACTIVITY**

Stability: This product is stable under expected conditions of use.

Conditions to avoid: Avoid exposure to high temperatures or direct sunlight.

Incompatible materials: Strong oxidising agents. Strong acids.

Hazardous decomposition products:

At elevated temperatures:	Carbon dioxide, Carbon monoxide, Nitrogen oxides, Sulfur oxides
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Possibility of hazardous reactions: Will not occur.

11**TOXICOLOGICAL INFORMATION****Specified substance(s)****Acute toxicity:**

Chemical name	Test results
Distillates (petroleum), hydrotreated middle	Dermal LD50 (Rabbit): > 2000 mg/kg
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	Dermal LD50 (Rabbit): > 5000 mg/kg
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	Oral LD50 (Rat): < 5000 mg/kg
Distillates (petroleum), hydrotreated	Oral LD50 (Rat): > 5000 mg/kg

middle	
Distillates (petroleum), hydrotreated middle	Inhalation LC50 (4 hour(s), Rat): 4.6 mg/l

Inhalation: Unlikely to be hazardous by inhalation because of the low vapour pressure of the substance at ambient temperature. Inhalation of oil mist or vapours formed during heating of the product will irritate the respiratory system and provoke coughing. Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection in the respiratory tract.

Eye contact: May cause minor irritation on eye contact.

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Ingestion: May cause discomfort if swallowed. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

Sensitisation: No data available.

Carcinogenicity: Prolonged and repeated contact with used oil may cause serious skin diseases, such as dermatitis and skin cancer.

Listed carcinogens: None

Mutagenesis: No data available.

Reproductive toxicity: No data available.

Other effects: None known.

12

ECOLOGICAL INFORMATION

Ecotoxicity: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Specified substance(s)

Chemical name	Test
Distillates (petroleum), hydrotreated middle	LC50 (96 hour(s), Freshwater - fish): 54 mg/l

Mobility: The product is insoluble in water and will spread on the water surface.

Persistence and degradability: Expected to be inherently biodegradable. The product contains substances which are not expected to be biodegradable.

Bioaccumulation potential: The product contains substances, which may accumulate in sediment.

Other adverse effects: No data available.

13

DISPOSAL CONSIDERATIONS

General information: Dispose in accordance with applicable federal, state, and local regulations.

Disposal methods: Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

European waste codes

Unused product: 13 01 10*

14	TRANSPORT INFORMATION
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ADR/RID Not regulated.

IMDG Not regulated.

IATA Not regulated.

15	REGULATORY INFORMATION
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Dangerous for the environment.

R66; Repeated exposure may cause skin dryness or cracking.

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

S23; Do not breathe fumes, vapour. S24/25; Avoid contact with skin and eyes. S37; Wear suitable gloves. S60; This material and its container must be disposed of as hazardous waste. S61; Avoid release to the environment. Refer to special instructions/safety data sheets.

16	OTHER INFORMATION
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Wording of the R-phrases in sections 2 and 3: R51/53; Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65; Harmful: may cause lung damage if swallowed. R66; Repeated exposure may cause skin dryness or cracking.

Inventory status: All ingredients are either listed or exempt from listing on EINECS/ELINCS.

Issued by: Federal Mogul Corporation

Issue date: 04-Nov-2009

Supersedes date:

SDS No.: 1027537

Disclaimer: The information provided on this data sheet was abstracted from supplier safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment.