**DPSS – Delphi Lockheed Automotive Ltd**

# MATERIAL SAFETY DATA SHEET

# PRODUCT

This Safety Data Sheet conforms to EC Directive 91/155/EEC or as subsequently amended.

Delphi Lockheed Automotive Limited urges the recipient of this Safety Data Sheet to study it carefully, to become aware of the hazards, if any, of the products involved. In the interest of safety you should:-

(1) Notify your employees, agents and contractors of the information on this sheet.
(2) Furnish a copy to each of your customers for the product.
(3) Request your customers to inform their employees and customers as well.

**REFERENCE:** LHM
**ISSUE DATE:** 14th January 2010

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

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### IDENTIFICATION OF THE SUBSTANCE OR PREPARATION

**PRODUCT NAME**

LHM and LHM+

**APPLICATION**
As a hydraulic fluid in the central hydraulic systems of those Citroen vehicles requiring such fluid.

**FEATURES**

**COMPANY IDENTIFICATION**

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## 2. HAZARDS IDENTIFICATION

### 2.1 Classification
This product is not classified as hazardous under current EU legislation.

### 2.2 Physical Hazards
Product is not classified as flammable but will burn.

### 2.3 Health Hazards
May cause mild irritation to skin on repeated contact. Aspiration (usually as a result of vomiting) or inhalation of mist
can lead to Oil Pneumoconiosis.

### 2.4 Environmental Hazards
Large spills may contaminate soil or ground water.

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 General
Blend of highly refined mineral oils, anti-wear/lubricity additives, and viscosity index improver.

### 3.2 Hazardous Ingredients

| Hazardous Ingredients | Einecs/ Eilincs | CAS-No. | Concentration Number in % | Hazard Class | Risk Phrases |
|---|---|---|---|---|---|
| Mineral Oil Hydrotreated (IP346 DMSO Extract <3%) | 649-482-00 | 72623-86-0 | 69 | Xn | R65 |
| Hydrotreated Light Distillate | 649-221-00 | 64742-46-7 | 10-30 | Xn | R65 |
| Sterically hindered phenol | - | - | 0.1 – 1.0 | N | R51/53 |
| Dithiophosphoric Acid ester | - | - | 0.1 – 1.0 | N | R51/53 |

See Section 16 for explanation of the risk phrases

## 4. FIRST AID MEASURES

### 4.1 Inhalation
Remove to fresh air. If recovery is not rapid seek medical attention.

### 4.2 Skin Contact
Remove contaminated clothing. Wash affected skin with soap and water. If irritation persists seek medical attention.

### 4.3 Eye Contact
Flush eye with water for at least 10 minutes. If irritation persists seek medical attention.

### 4.4 Ingestion
Obtain medical advice immediately. **DO NOT INDUCE VOMITING**.

**4.5 General/Other**
Medical personnel seeking to administer first aid are referred to the services of the Poisons Information Service who
can advise in such instances

**5. FIRE FIGHTING MEASURES**

**5.1 Suitable Extinguishing Media**
Carbon dioxide, foam or water (fog or fine spray). Prevent water spray from entering water courses.

**5.2 Unsuitable Extinguishing Media**
Direct water jet (although these may be used to cool adjacent containers).

**5.3 Exposure Hazards**
Combustion products may contain harmful or irritant fumes. Heat from a fire could result in drums bursting.

**5.4 Special Protective Equipment**
In the event of a large fire self-contained breathing apparatus should be worn.

**6. ACCIDENTAL RELEASE MEASURES**

**6.1 Personal Precautions**
Being a lubricant, spilt product presents a significant slip or skid hazard- prevent any unnecessary personnel or
vehicles entering the area. Precautions should be taken to prevent skin and eye contact when cleaning up.

**6.2 Environmental Precautions**
Prevent entry into watercourses (drains, ditches or rivers etc.). If spillage does enter environment inform Environmental Authority immediately. In the UK this would be the Environmental Agency.

**6.3 Methods for Cleaning Up**
Contain spillage using inert material (sand, earth etc.). Collection may be by salvage vehicle and/or the use of inert
absorbents. Remove all material to an appropriately labelled salvage container for disposal. Clean contaminated area
with plenty of water and detergent.

**7. HANDLING AND STORAGE**

**7.1 Storage**
Suitable bulk storage vessels are mild or stainless steel tanks or tight head steel drums. For smaller quantity resealable tinplated steel or HD Polyethylene containers are recommended. Store away from sources of strong heat
and strong oxidising agents. Keep containers tightly closed and avoid contact with any other substance. Take
precautionary measures to prevent product entering the environment. In the UK the Oil Storage Regulations may
apply.

**7.2 Handling**
Handling equipment should minimise the formulation of mists. If large quantities of the product are being moved
(pumped or decanted) static discharges are possible – especially in dry weather. To avoid this earth bonding of
pipework, vessels etc. may be advisable.

## 8. EXPOSURE CONTROL/PERSONAL PROTECTION

### 8.1 Exposure Limits and Controls
Use engineering controls to prevent or minimise aerosol or vapour generation. Ensure good general ventilation.
Occupational Exposure Limit: Oil Mist: 5 mg/m3 8 hr T.W.A. (ACGIH)
10 mg/m3 15 min. T.W.A.

### 8.2 Respiratory Protection
Use respirator designed for combined organic vapour/ - particulate (A2/P2) where significant aerosol or vapour is
generated.

### 8.3 Hand Protection
Suitable protective gloves are PVC or nitrile rubber.

### 8.4 Eye Protection
Wear close fitting goggles where there is a risk of splashing. Eye baths should be provided at locations where
accidental exposure may occur.

### 8.5 Skin Protection
Where significant exposure is possible wear impervious body covering.

### 8.6 Environmental Exposure Controls
Appropriate secondary containment should be provided to prevent the product entering the environment. The measures outlined in the Oil Storage Regulations 2001 should be adopted where appropriate.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | **Test method** |
|---|---|---|
| 9.1 Appearance | Bright green liquid | Visual |
| 9.2 Odour | Oil | N/A |
| 9.3 pH | N/A | |
| 9.4 Boiling Range | 250– 380 °C. | IP 123 |
| 9.5 Melting Point | < -50 °C. | ISO 7308 |
| 9.6 Flash Point: | > 110 °C. | IP35 |
| 9.7 Auto-Ignition Temperature | > 350 °C. (by analogy) | ASTM D 286 |
| 9.8 Flammability Limits in air | Not known but expected to be 1–8% | |
| 9.9 Density | 0.83 kg/l at 20 Deg.C. | |
| 9.10 Solubility | Insoluble in water. | |
| 9.11Partition Coefficient (Log POW) | >3 OECD 117 | |
| 9.12 Kinematic Viscosity | 18 cSt at 40 Deg.C. | ASTM D 445 |
| 9.13 Vapour Pressure | < 0.1 kPa at 20 Deg.C. | Reid |
| 9.14 Vapour Density | Not established | |
| 9.15 Evaporation Rate | Negligible | |

## 10. STABILITY AND REACTIVITY

### 10.1 Conditions to avoid
Product is stable under normal conditions. Prevent exposure to strong sources of heat.

### 10.2 Materials to Avoid
Strong oxidising agents or strong acids.

**10.3 Hazardous Decomposition Products**
Decomposition products which can be formed on heating include Carbon monoxide, Carbon dioxide and oxides of
nitrogen or sulphur.

**11. TOXICOLOGICAL INFORMATION** (Comments may be based on analogy with similar products)

**11.1 Eye Contact**
May cause mild irritation, but not classified as an eye irritant. (Test method OECD 405).

**11.2 Skin Contact**
Unlikely to cause harm to the skin on brief contact but prolonged or repeated contact can cause irritation and/or
dermatitis. Mineral oil can block skin pores leading to Oil Acne. Not known to be a sensitizer.
LD50 Rabbit = > 2000 mg/kg.

**11.3 Ingestion**
Product is of relatively low acute oral toxicity when swallowed. It may cause nausea, vomiting or diarrhoea. LD 50 Rat = > 5000 mg/kg. Aspiration of the product into the lungs (usually as a result of vomiting) can lead to fatal
Oil Pneumoconiosis - seek medical attention immediately.

**11.4 Inhalation**
Unlikely to be hazardous by inhalation at ambient temperatures due to low vapour pressure. Inhalation at higher
temperatures may cause irritation to the respiratory tract. See also note above re aspiration.

**11.5 Chronic or Long Term Toxicity**
General – Not expected to display significant long term toxicity.

| | |
|---|---|
| Carcinogenicity | Not known to be carcinogenic. |
| Mutagenicity | Not known to be mutagenic. |
| Reproductive Toxicity | Not known to be toxic in this regard |

**12. ECOLOGICAL INFORMATION**

**12.1 Ecotoxicity**
Acute toxicity to aquatic or soil organisms is expected to be low, however oil spills can smother and suffocate by
preventing passage of oxygen and water. Oil contamination can also foul and smother birds and marine animals.

**12.2 Mobility**
Insoluble in water on which it floats. Does not evaporate from water or soil. Limited mobility in soil but some components may penetrate the soil and cause groundwater pollution.

**12.3 Persistence/Degradability**
Product is inherently but not readily biodegradable. Should not be admitted into biological waste treatment plants.

**12.4 Bioaccumulative Potential**
Base oil hydrocarbons possibly accumulative. Log POW > 6.

## 13. DISPOSAL CONSIDERATIONS

**13.1 Disposal Dangers**
Used mineral oils can be carcinogenic - avoid contact with skin.

**13.2 Disposal Methods**
Controlled incineration or recycling is recommended. Under no circumstances should this product be disposed of
to drains, soil or water courses. It may be advisable to seek advice from Local Waste Authority before disposal.

**13.3 Regulations**
Dispose of in accordance with local and national regulations. In the E.U. used mineral oils are classified as hazardous waste (Directive 91/689/EEC), EWC number: 13.01.10.

## 14. TRANSPORT INFORMATION

| | |
|---|---|
| **14.1 UN No./Class** | None |
| **14.2 ADR/RID** | Not classified |
| **14.3IMO/IMDG** | Not classified |
| **14.4 Marine Pollutant** | No |
| **14.5 IATA/IACO Class** | Not classified |

## 15. REGULATORY INFORMATION

**15.1 E.U. Classification (U.K. – CHIP 3**) Not classified as hazardous for supply.
Risk Phrases N/A
Safety Phrases N/A

**15.2 Restrictions on use or Exposure**
To be in accord with local and national regulations. In the U.K. this would include the HSWA and COSHH.

**15.3 Other**
While the product is not officially classified as dangerous for supply, the following risk and safety phrases are strongly recommended:
1. Keep out of the reach of children.
2. Contains Petroleum Distillates – if swallowed do not induce vomiting. Seek medical advice immediately and show this container or label.

## 16. OTHER INFORMATION

**16.1 Risk (R) Phrases**
R65 –Harmful may cause lung damage if swallowed.
R51/53 -Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

**16.2 Revisions**
Changes to this edition of the MSDS are indicated by a bar in the margin.

**16.3 Legal Disclaimer**
The information contained herein is based on the present knowledge and experience of Delphi Product & Service Solutions. It in no way constitutes the users own assessment of work place risk as required by other health and safety legislation. Delphi Product & Service Solutions does not, by supplying this information, guarantee or warrant any specific properties or qualities of goods supplied. It is the responsibility of the purchaser to determine whether the goods ordered are fit for any purpose for which they may be required. This information is provided subject to Delphi Product & Service Solutions' Conditions of Sale, and in particular Conditions 9 and 14 thereof.

## OTHER INFORMATION

**The data and advice given apply when the product is sold for the stated application or applications. The product is not sold as suitable for any other application.**

**Use of the product for applications other than as stated in this sheet may give rise to risks not mentioned in this sheet.**

**You should not use the product other than for the stated application in Section 1 without seeking advice from Delphi Product & Service Solutions Technical Services, available for additional help and advice.**

**It is the responsibility of the user to determine and ensure the condition for safe use of the product within the workplace.**