

MATERIAL SAFETY DATA SHEET

(According to Regulation EC No 1907/2006 - REACH and Regulation EC No 1272/2008 - CLP)

REPSOL ARIES 68

| 1. PRODUCT IDENTIFICATION | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------|
| Company: REPSOL YPF Lubricantes y Especialidades, S.A. Address: Glorieta del Mar Caribe N°1. 28043 Madrid Tel# 34 913489400 Fax# +34 913483610 e-mail address: FDSRCPP@repsol.com | Commercial name: REPSOL ARIES 68 | |
| | Chemical name: Lubricant oil. | |
| | Synonyms: Lubricant oil for turbines and compressors. | |
| | Molecular formula: Complex mixture of hydrocarbons and additives. | CAS #: NP |
| | EC (EINECS)#: NP | Annex I (Dir. 67/548/EEC) #: NP |

| 2. HAZARDS IDENTIFICATION | |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PHYSICAL / CHEMICAL | TOXICITY (SYMPTOMS) |
| Lighter than water. It can obstruct sewers and water intakes. | Inhalation: Short-term exposures to vapours and oil mists cause irritation of the respiratory tract. Long-term exposures can cause lung fibrosis preceded by broncho-pulmonary symptoms in concentrations over 5 mg/m ³ . Ingestion/Aspiration: Intestinal absorption is very low. Accidental intake of large amounts causes irritation of the gastrointestinal tract, nausea, vomiting and diarrhoea. Contact skin/eyes: Low skin percutaneous toxicity in short-term exposures. Long-term exposures produce smarting, redness, irritation and dermatitis due to defatting of the keratin layer. No skin sensitization has been registered in animal tests or human cases. Repeated exposure to vapours or liquid cause irritation. General toxic effects: Mild skin irritation and respiratory tract irritation are the most common effects. |
| Combustible. | |
| | |

| 3. COMPOSITION | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------|-----------|
| General composition: Additivated lubricant oil. Complex combination of saturated hydrocarbons having carbon numbers in the range of C ₁₅ -C ₅₀ . Base oil contains less than 2% PCA's (DMSO extract according to IP346). Contains anticorrosion, antioxidant and antifoaming additives. | | | |
| Dangerous components | Range % | Classification | S Phrases |
| NP | | | |

4. FIRST-AID MEASURES

Inhalation: In case of inhalation remove the victim to fresh air. Administer oxygen if necessary. Call for medical attention.

Ingestion/Aspiration: Do not induce vomiting. If conscious have the victim drink water.

Contact skin/eyes: Flush with plenty of water and soap. Flush with plenty of water during at least 15 minutes. Call for medical aid.

General measures: Call for medical attention.

5. FIRE-FIGHTING MEASURES

Extinguishing agents: Foams, dry chemicals, CO₂, water spray.

Non suitable extinguishing agents: Water applied directly may be ineffective due to dispersion of the material.

Combustion products: CO₂, H₂O, CO (in defect of air), SO₂, and NO_x.

Special measures: Not required.

Special hazards: NP

Protective equipment: Heat-resistant suit and gloves. Self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions: Hazard of physical fouling to coasts, soils, etc, due to low solubility and high viscosity of the oils. Avoid the material entering water intakes.

Personal precautions: Avoid prolonged contact with contaminated clothes or with the product and inhalation of vapours and mists.

Cleanup methods: Treat as an accidental oil spill or leak; Avoid dispersion of the material with mechanical barriers. Remove with physical or chemical treatment.

Personal protection: Suitable protective clothing, gloves and goggles should be worn during the clean up operation.

7. HANDLING AND STORAGE

Handling:

General precautions: Avoid prolonged contact and inhalation of mists and vapours from heated oils. During transfer avoid contact with air, use pumps and connections properly earthed to prevent generation of electrostatic charges. The contaminated air should be filtered before discharge.

Specific conditions: Safety goggles and gloves should be used. Do not weld or carry out any activity that could generate sparks in areas close to product storage. Do not weld in empty tanks without previous purging.

Storage:

Temperature and decomposition products: Carbon monoxide (toxic gas) and asphyxiants could be emitted at high temperatures by incomplete combustion.

Dangerous reactions: NP

Storage conditions: Containers properly labelled and sealed, placed in cool and well ventilated areas. Do not smoke, weld or do any work that can produce flames or sparks in storage area.

Incompatible materials: Strong oxidants.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protection:

Eye protection: Safety goggles to avoid splashes.

Respiratory protection: The product is slightly volatile at room temperature and does not present special risks. In presence of heated oils, wear protective masks to avoid vapour inhalation.

Skin protection: Gloves (polyethylene, polyvinyl chloride and neoprene; do not use neither natural nor butyl rubber)

Other protective equipment: Showers and eye-washers in the working area.

General precautions: Avoid prolonged contact and inhalation of mists and vapours from heated oils. Local exhaust ventilation should be installed to capture and remove emissions near to the point of generation.

Specific hygiene measures: Contaminated footwear should be discarded. Contaminated clothing should not be taken home for laundering. Regular changing of underwear is also important if penetration of outer clothing occurs. Disposable wipes should be used. Washing/Showering facilities with a non-solvent based skin cleaner, hot water and soap must be provided and used. Use skin reconditioning cream after work.

Exposure controls: TLV/TWA (ACGIH): 5mg/m³
UK: OEL-TWA (COSHH): 5mg/m³; OEL-STEL: 10mg/m³ [Oil mist]

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Amber oily liquid.

pH: NP

Colour: 2.5 (ASTM D-1500)

Odour: Lube oil.

Boiling point: > 400 °C (ASTM 1160)

Melting/Freezing point: -9 °C max. (ASTM D-97)

Flash point: 215 °C min. (ASTM D-92)

Autoignition temperature: NP

Explosive properties: NP

Oxidizing properties: NP

Vapour pressure: < 0.1 mm Hg at 25 °C

Density: 0.880 g/cm³ typical at 15 °C

Surface tension: NP

Viscosity: (100 °C) 8.5 cSt typical
(40 °C) 68 cSt typical

Vapour density: NP

Partition coefficient (n-octanol/water): NP

Water solubility: Insoluble.

Solubility: Organic solvents.

Other data: Fire point: 225 °C min. (ASTM D-92)

10. STABILITY AND REACTIVITY

Stability: Stable at room temperature.

Conditions to avoid: Exposure to open flames.

Materials to avoid: Strong oxidants react with oils and organic materials.

Hazardous decomposition/combustion products: Carbon monoxide (toxic gas) and asphyxiants could be emitted at high temperatures by incomplete combustion.

Polymerization risk: NP

Conditions to avoid: NP

11. TOXICOLOGICAL INFORMATION

Routes of exposure: Contact with skin, eyes and inhalation. Ingestion is not frequent.

Acute and chronic effects: No malignant acute effects are known. Irritation by contact with liquid and prolonged inhalation of vapours or oil mists are the most common effects.

LD₅₀>15 g/Kg (oral-rat)

LD₅₀>5 g/Kg (skin-rat)

Carcinogenicity: Base oil: IARC classification: **Group 3** (The agent is not classifiable as to its carcinogenicity to humans)

Reproductive toxicity: No evidences.

Medical conditions which increase hazard to exposure: Respiratory tract deficiencies and dermatological problems.

12. ECOLOGICAL INFORMATION

Pollutant potential:

Persistence and degradability: The material is oily and viscous and floats on water. It presents a high physical fouling potential, mainly in sea-spills; by contact destroys small aquatic organisms and makes living difficult for upper organisms, not allowing the sunlight to reach underlying marine ecosystems, affecting its normal development. It is not readily biodegradable.

Mobility/bioaccumulative potential: There are no data to indicate that the product is significantly bioaccumulated by aquatic organisms or incidence in the trophic food chain, although it may cause long-term adverse effects in the aquatic environment, due to its high physical fouling potential.

Ecotoxicological effects: LL₅₀ (Lethal loading)>1,000 mg/l (lubricant base oils). Dangerous for aquatic life in high concentrations (spillages).

13. DISPOSAL CONSIDERATIONS

Disposal methods (surplus): Recycling and recovery of base oils when possible.

Waste: Liquids and solids from industrial process; do not attempt to clean containers since residue is difficult to remove; dispose in a safe way.

Disposal: Only in specific prepared and controlled areas. Avoid releasing waste oils to sewers because they can destroy water treatment plant microorganisms.

Handling: Labelled and sealed containers. Avoid direct contact with waste oils.

Provisions: Companies which recover, dispose, store, transport or handle waste should comply with Dir. 2008/98/EC on waste, or other local, national or community provisions.

14. TRANSPORT INFORMATION

Special precautions: Stable at room temperature and during transport. Store in cool well ventilated areas.

Additional information:

UN Number: NP

ADR/RID: Not classified

Hazard identification number: NP

IATA-DGR: Not classified

Proper shipping name: NP

IMDG: Not classified

15. REGULATORY INFORMATION

CLASSIFICATION NP

LABELLING

Symbols: NP

Phrases R
NP

Phrases S
NP

Other regulations: NP

16. OTHER INFORMATION

Data Bases consulted

EINECS: European Inventory of Existing Commercial Substances.
TSCA: Toxic Substances Control Act, US Environmental Protection Agency
HSDB: US National Library of Medicine.
RTECS: US Dept. of Health & Human Services

R phrases/Hazard Class-and-Category shown in the document:
NP

Legislation consulted

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Regulation (EC) no 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (CLP).
Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Dir. 67/548/EEC about classification, labelling and packaging of dangerous substances (including amendments and adaptations in force).
Dir. 1999/45/EC about classification, labelling and packaging of dangerous preparations (including amendments and adaptations in force).
Dir. 91/689/EEC dangerous waste; Dir. 2008/98/EG waste management.
Royal Decree 363/95: Regulation about notification of new substances and classification, packaging and labelling of dangerous substances.
Royal Decree 255/2003: Regulation about classification, packaging and labelling of dangerous preparations.
European Agreement concerning the international carriage of dangerous goods by road (ADR).
Regulation on the international transport of dangerous goods on the railway. (RID)
International maritime code of dangerous goods. (IMDG)
International Air Transport Association (IATA) regulation pertaining to air shipment.

Glossary

CAS: Chemical Abstract Service
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists.
TLV: Threshold Limit Value
TWA: Time Weighted Average
STEL: Short-term Exposure Level
REL: Recommendable Exposure Limit
PEL: Permissible Exposure Limit
INSHT: Instituto Nal. de Seguridad e Higiene en el Trabajo

VLA-ED: Valor Límite Ambiental – Exposición Diaria
VLA-EC: Valor Límite Ambiental – Exposición Corta
LD₅₀: Lethal Dose Medium
LC₅₀: Lethal Concentration Medium
EC₅₀: Effective Concentration Medium
IC₅₀: Inhibitory Concentration Medium
BOD: Biological Oxygen Demand.
NP: Not Pertinent
| : Changes from the last revision

The information given in this document has been compiled based on the best existing information sources, latest available knowledge and according to the current requirements on classification, packaging and labelling of hazardous substances. It does not imply the information is exhaustive or accurate in all cases. It is the user's responsibility to determine the validity of the information contained in this Material Safety Data Sheet to apply depending on the case.

