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Revision Date: 15 Mar 2012

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## MATERIAL SAFETY DATA SHEET

### SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

As of the revision date above, this (M)SDS meets the regulations in India.

#### PRODUCT

**Product Name:** MOBIL PEGASUS 610

**Product Description:** Base Oil and Additives

**Product Code:** 201525104020, 606020

**Intended Use:** Natural gas engine oil

#### COMPANY IDENTIFICATION

**Supplier:** ExxonMobil Lubricants Private Limited  
4th Floor, Building Number 10, Tower C  
DLF Cyber City, DLF Phase-II  
Gurgaon - 122 002  
Haryana India

**Supplier General Contact**

+91-124-4951300

### SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

#### Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*	Symbols/Risk Phrases
BRANCHED ALKYLPHENOL AND CALCIUM BRANCHED ALKYLPHENOL (74499-35-7 & 132752-19-3)		0.1 - 1%	Xi;R38, Xn;Repro. Cat. 3;R62, N;R50/53
CALCIUM BRANCHED CHAIN ALKYL PHENATE SULPHIDE		1 - 5%	R53

#### Reportable Hazardous Constituent(s) Contained in Complex Substance(s)

Name	CAS#	Concentration*	Symbols/Risk Phrases
SULPHUR	7704-34-9	1 - 5%	None

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

### SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

#### HEALTH HAZARDS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

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**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

## SECTION 4 FIRST AID MEASURES

### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

### SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

### EYE CONTACT

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

### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

## SECTION 5 FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Smoke, Fume, Aldehydes, Sulphur oxides, Incomplete combustion products, Oxides of carbon

### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >246°C (475°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

## SECTION 6 ACCIDENTAL RELEASE MEASURES

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## NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

## PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## ENVIRONMENTAL PRECAUTIONS

**Large Spills:** Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7

## HANDLING AND STORAGE

### HANDLING

Avoid all personal contact. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

**Static Accumulator:** This material is a static accumulator.

### STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers.

## SECTION 8

## EXPOSURE CONTROLS / PERSONAL PROTECTION

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**Exposure limits/standards for materials that can be formed when handling this product:** When mists/aerosols can occur the following is recommended: 5 mg/m<sup>3</sup> - ACGIH TLV (inhalable fraction).

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

## ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

## PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation. Particulate

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. Nitrile, Viton

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

**Specific 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. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

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SECTION 9	PHYSICAL AND CHEMICAL PROPERTIES
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**Note:** Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

**GENERAL INFORMATION**

**Physical State:** Liquid

**Colour:** Amber

**Odour:** Characteristic

**Odour Threshold:** N/D

**IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION**

**Relative Density (at 15 °C):** 0.888

**Flash Point [Method]:** >246°C (475°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

**Boiling Point / Range:** > 288°C (550°F)

**Vapour Density (Air = 1):** > 2 at 101 kPa

**Vapour Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C

**Evaporation Rate (n-butyl acetate = 1):** N/D

**pH:** N/A

**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5

**Solubility in Water:** Negligible

**Viscosity:** 132 cSt (132 mm<sup>2</sup>/sec) at 40°C | 13.6 cSt (13.6 mm<sup>2</sup>/sec) at 100°C

**Oxidizing Properties:** See Hazards Identification Section.

**OTHER INFORMATION**

**Freezing Point:** N/D

**Melting Point:** N/A

**Pour Point:** -15°C (5°F)

**DMSO Extract (mineral oil only), IP-346:** < 3 %wt

SECTION 10	STABILITY AND REACTIVITY
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**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidisers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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**ACUTE TOXICITY**

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
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<b>Inhalation</b>	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
<b>Ingestion</b>	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
<b>Skin</b>	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
<b>Eye</b>	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

## CHRONIC/OTHER EFFECTS

### For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components or similar formulations.

### Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals. Branched alkylphenol and its calcium salt: Effects on liver, adrenals, and reproductive organs were seen in rats with repeated oral doses. Decreased fertility index, decreased number of live pups, and other effects were seen in reproductive studies in rats dosed orally. Time to sexual maturation and weights of the uterus and ovaries were decreased in young female rats dosed orally.

Additional information is available by request.

## IARC Classification:

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1

2 = IARC 2A

3 = IARC 2B

## SECTION 12

## ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

## ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

## MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

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## PERSISTENCE AND DEGRADABILITY

### Biodegradation:

Base oil component -- Expected to be inherently biodegradable

## BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

## ECOLOGICAL DATA

Component	Acute Aquatic Toxicity
BRANCHED ALKYLPHENOL AND CALCIUM BRANCHED ALKYLPHENOL (74499-35-7 & 132752-19-3)	L(E)C50 >0.1 - 1 mg/L

NOTE: Tetrapropenyl phenol when tested in oil (1000mg/l) was not acutely toxic to aquatic organisms; based on supplier assessment.

## SECTION 13

## DISPOSAL CONSIDERATIONS

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

## DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

## SECTION 14

## TRANSPORT INFORMATION

**LAND :** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**AIR (IATA):** Not Regulated for Air Transport

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<b>SECTION 15</b>	<b>REGULATORY INFORMATION</b>
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**Material is not hazardous as defined by the EU Dangerous Substances/Preparations Directives.**

**EU LABELING: Not regulated according to EC Directives**

**Contains:** SUBSTITUTED ALKYL BENZOTRIAZOLE, SULFONIC ACIDS, PETROLEUM, CALCIUM SALTS  
May produce an allergic reaction. This material contains one or more sensitizers <1.0% by weight which are not identified in the Composition Section.

**REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS**

**Complies with the following national/regional chemical inventory requirements:** AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

**Special Cases:**

Inventory	Status
ELINCS	Restrictions Apply

<b>SECTION 16</b>	<b>OTHER INFORMATION</b>
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**N/D = Not determined, N/A = Not applicable**

**KEY TO THE RISK CODES CONTAINED IN SECTION 2 AND 3 OF THIS DOCUMENT (for information only):**

R38; Irritating to skin.

R50/53; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R53; May cause long-term adverse effects in the aquatic environment.

R62; Possible risk of impaired fertility.

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:** Revision Changes:

Section 09: Phys/Chem Properties Note was modified.

Section 09: Boiling Point °C(°F) was modified.

Section 08: Comply with applicable regulations phrase was modified.

Section 09: Vapour Pressure was modified.

Section 01: Company Mailing Address was modified.

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Section 09: Relative Density - Header was modified.

Section 09: Flash Point °C(°F) was modified.

Section 09: Viscosity was modified.

Section 09: Viscosity was modified.

Section 15: National Chemical Inventory Listing was modified.

Section 08: Exposure limits/standards was modified.

Section 15: Sensitiser Statement was modified.

Section 01: Company Contact Methods Sorted by Priority was modified.

Section 06: Protective Measures was added.



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Section 06: Accidental Release - Protective Measures - Header was added.

Composition: Primary Ingredient Name was added.

Composition: CAS Number was added.

Composition: Symbol/Risk Phrase Header was added.

Composition: Concentration - Header was added.

Composition: Constituents Table - Header was added.

Composition: Component Table was added.

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