

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBILUX EP 111
Product Description: Base Oil and Additives
Product Code: 2015A0208090, 641316-00
Intended Use: Grease

COMPANY IDENTIFICATION

Manufacturer/Supplier: ExxonMobil Asia Pacific Pte. Ltd (Company No.: 196800312N)
1 Harbour Front Place
#06-00 Harbour Front Tower One 098633 Singapore

**24 Hour Health Emergency
Supplier General Contact** +1 703-253-4229/+1 703-527-3887
(65) 6885 8000/86-21-24076000

Supplier: EQUATOR COMPANY LIMITED
146 - 148 Khanh Hoi Street
Ward 6, District 4, Ho Chi Minh City
Vietnam
Supplier General Contact +84 8 3940 6411

Supplier: Nam Giang Commercial Service Co., Ltd)
202 Hoang Van Thu Street
Ward 9, Phu Nhuan District
Ho Chi Minh City Vietnam
Supplier General Contact +84 28 73024500

Supplier: PAN International Petroleum Joint Stock Company
53 Hoang Quoc Viet street
Nghia Do Ward, Cau Giay District
Hanoi Vietnam
Supplier General Contact +84 24 32123939

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Skin irritation: Category 3. Skin Sensitizer: Category 1.
Acute aquatic toxicant: Category 2. Chronic aquatic toxicant: Category 3.

LABEL:
Symbol:

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Signal Word: Warning

Hazard Statements:

Health: H316: Causes mild skin irritation. H317: May cause allergic skin reaction.
 Environmental: H401: Toxic to aquatic life. H412: Harmful to aquatic life with long lasting effects.

Precautionary Statements:

Prevention: P261: Avoid breathing fumes. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves.
 Response: P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P333 + P313: If skin irritation or rash occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse.
 Disposal: P501: Dispose of contents and container in accordance with local regulations.

Contains: MOLYBDENUM, BIS(0,0-BIS(2-ETHYLHEXYL)PHOSPHORODITHIOATO-S,S')DIOXODI-U-THIOXODI-,

Other hazard information:

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Mildly irritating to skin. May be irritating to the eyes, nose, throat, and lungs.

ENVIRONMENTAL HAZARDS

No additional hazards.

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 3	COMPOSITION / INFORMATION ON INGREDIENTS
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This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
1H-IMIDAZOLE-1-ETHANOL, 2-(8-HEPTADECENYL)-4,5-DIHYDRO-	95-38-5	0.1 - < 1%	H302, H314(1C), H373, H400(M factor 10), H410(M factor 1)

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ASPHALT (PETROLEUM)	8052-42-4	40 - < 50%	None
MOLYBDENUM, BIS(0,0-BIS(2-ETHYLHEXYL)PHOSPHORODITHIOATO-S,S')DIOXODI-UTHIOXODI-	72030-25-2	1 - < 5%	H315, H317, H413

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

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. Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

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.

NOTE TO PHYSICIAN

None

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters 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: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
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. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the 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: Scrape up spilled material with shovels into a suitable container for recycle or disposal.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

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

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7	HANDLING AND STORAGE
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HANDLING

Avoid contact with skin. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

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Substance Name	Form	Limit / Standard			NOTE	Source	Year
		STEL	10 mg/m3				
ASPHALT (PETROLEUM)		STEL	10 mg/m3			Vietnam OELs	2019
ASPHALT (PETROLEUM)		TWA	5 mg/m3			Vietnam OELs	2019
ASPHALT (PETROLEUM) [benzene solubles]	Fume, inhalable	TWA	0.5 mg/m3			ACGIH	2019
MOLYBDENUM, BIS(0,0-BIS(2-ETHYLHEXYL)PHOSPHORODITHIOATO-S,S')DIOXODI-U-THIOXODI-, [as Mo]	Inhalable particles.	TWA	10 mg/m3			ACGIH	2019
MOLYBDENUM, BIS(0,0-BIS(2-ETHYLHEXYL)PHOSPHORODITHIOATO-S,S')DIOXODI-U-THIOXODI-, [as Mo]	Respirable particles.	TWA	3 mg/m3			ACGIH	2019

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following is recommended: 5 mg/m³ - 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/vapor 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. If contact with forearms is likely wear gauntlet style gloves. Nitrile, Viton

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

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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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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: Solid
Form: Semi-fluid
Color: Black
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.946
Flammability (Solid, Gas): N/A
Flash Point [Method]: >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F) [Estimated]
Decomposition Temperature: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated]
Solubility in Water: Negligible
Viscosity: [N/D at 40 °C] | 43 cSt (43 mm²/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/D
DMSO Extract (mineral oil only), IP-346: < 3 %wt

NOTE: Most physical properties above are for the oil component in the material.

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 oxidizers

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

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Mildly irritating to skin with prolonged exposure. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: Data available.	May cause allergic skin reaction. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 442B
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

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TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
1H-IMIDAZOLE-1-ETHANOL, 2-(8-HEPTADECENYL)-4,5-DIHYDRO-	Oral Lethality: LD50 1265 mg/kg (Rat)

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract. An ingredient or ingredients that are classified as a skin sensitizer.

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 sensitizing in test animals.

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 for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms.

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

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.

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.

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

Suitable routes of disposal are supervised incineration, preferentially with energy recovery, or appropriate recycling methods in accordance with applicable regulations and material characteristics at the time of disposal.

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
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LAND : Not Regulated for Land Transport

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

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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This material is considered hazardous according to the Law on Chemicals.

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA):
AIIIC, DSL, ENCS, IECSC, ISHL, KECI, PICCS, TCSI, TSCA

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H302: Harmful if swallowed; Acute Tox Oral, Cat 4

H314(1C): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1C

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H317: May cause allergic skin reaction; Skin Sensitization, Cat 1

H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2

H400: Very toxic to aquatic life; Acute Env Tox, Cat 1

H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

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H413: May cause long lasting harmful effects to aquatic life; Chronic Env Tox, Cat 4

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified.
Composition: Concentration Footnote information was modified.
Composition: Defined as statement (GHS) information was modified.
EQUATOR COMPANY LIMITED: Section 01: Supplier Mailing Address information was modified.
GHS Environmental Classification information was modified.
GHS Environmental Hazards - Header information was modified.
GHS Hazard Statements - Header information was modified.
GHS Health Classification information was modified.
GHS Health Hazards - Header information was modified.
GHS Health Hazards information was added.
GHS Health Symbol information was modified.
GHS NO SYMBOL HEADER information was deleted.
GHS Precautionary Statements - General - Header information was modified.
GHS Precautionary Statements - Prevention - Header information was modified.
GHS Precautionary Statements - Prevention information was modified.
GHS Precautionary Statements - Response- Header information was modified.
GHS Precautionary Statements - Response information was added.
GHS Signal Word - Header information was modified.
GHS Signal Word information was modified.
GHS Symbol Header information was added.
Hazard Identification: AP - Hazards Statement - GHS information was modified.
Hazard Identification: Health Hazards information was modified.
Nam Giang Commercial Service Co., Ltd): Section 01: Supplier Mailing Address information was modified.
PAN International Petroleum Joint Stock Company: Section 01: Supplier Mailing Address information was modified.
Section 01: Company Mailing Address information was modified.
Section 01: Hazard Classification - Header information was modified.
Section 02: GHS Contains - Header information was modified.
Section 02: GHS Contains for LABEL_GHS codes information was added.
Section 04: First Aid Inhalation information was modified.
Section 04: First Aid Skin information was modified.
Section 06: Accidental Release Measures - Environmental Precautions information was modified.
Section 06: Protective Measures information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 07: Static Accumulator information was modified.
Section 08: Exposure Control - Note information was modified.
Section 08: Exposure Limits Table information was modified.
Section 08: Exposure limits/standards information was modified.
Section 08: Hand Protection information was modified.
Section 08: Personal Protection information was modified.
Section 08: Respiratory CEN Standards - AP information was added.
Section 08: Respiratory Protection information was modified.
Section 08: Skin and Body Protection information was modified.
Section 09: n-Octanol/Water Partition Coefficient information was modified.
Section 09: Phys/Chem Properties Note information was modified.
Section 09: Section 9 Footnotes information was modified.
Section 09: Viscosity information was modified.
Section 11 Substance Toxicity table - Header information was modified.
Section 11: Acute Toxicity Table Header information was modified.

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Section 11: Additional Health Information information was modified.
Section 11: Chronic Tox - Component information was modified.
Section 11: Other Health Effects Header information was modified.
Section 11: Other Health Effects information was modified.
Section 11: Skin Irritation Conclusion information was modified.
Section 11: Skin Sensitization Conclusion information was modified.
Section 11: Skin Sensitization Test Comment information was modified.
Section 11: Skin Sensitization Test Data information was modified.
Section 11: Skin Sensitization Test Guideline information was added.
Section 12: Bioaccumulation - Header information was modified.
Section 12: Ecological Information - Acute Aquatic Toxicity information was modified.
Section 12: Ecological Information - Bioaccumulation information was modified.
Section 12: Ecological Information - Biodegradation information was modified.
Section 12: Ecological Information - Mobility information was modified.
Section 12: Ecotoxicity - Header information was modified.
Section 12: Mobility - Header information was modified.
Section 12: Persistence and Degradability- Header information was modified.
Section 13: Disposal Considerations - Disposal Recommendations information was modified.
Section 13: Disposal Recommendations - Note information was modified.
Section 15: Labeling - Header information was modified.
Section 15: National Chemical Inventory Listing information was modified.
Section 15: TAB information was modified.
Section 16: HCode Key information was modified.
Section 16: MSN, MAT ID information was modified.

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DGN: 2009915XVN (553454)
