

# SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	<b>Genuine ORION Vaneless Pump oil A-02</b>
Use of the substance	Only for ORION Vaneless Pump
<b>Company name</b>	<b>ORION MACHINERY CO.,LTD.</b>
Address	246 KOTAKA,SUZAKA-SHI,NAGANO-KEN,JAPAN
Responsible Department	Technology Administration Division
Contact	Telephone +81-26-245-1230    Telefax +81-26-245-4151
Reference number	A-02-3

## SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

### Other hazard information:

### PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

### HEALTH HAZARDS

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

### ENVIRONMENTAL HAZARDS

No significant 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

Chemical Substance or Mixture Identification

This material is defined as a mixture.

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

Name	CAS#	Concentration*	GHS Hazard Codes
1-DECENE, HOMOPOLYMER HYDROGENATED	68649-12-7	40 - < 50%	H304
PHOSPHORIC ACID, METHYLPHENYL DIPHENYL ESTER	26444-49-5	0.1 - < 0.25%	H400(M factor 1), H410(M factor 1)
TRIPHENYL PHOSPHATE	115-86-6	0.1 - < 0.25%	H400(M factor 1), H411

\* 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.

**SKIN CONTACT**

Wash contact areas with soap and water. 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 (CO<sub>2</sub>) 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]:** >218°C (424°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****NOTIFICATION PROCEDURES**

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

**PERSONAL PRECAUTIONS**

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 it without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do it 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:** Dike 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(Technical Measures; Safety Handling Precautions; Contact Avoidance)**

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 ground procedures. However, bonding and grounds 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 (Safe Storage Conditions; Safe Containers and Packaging Materials)**

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

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**EXPOSURE LIMIT VALUES**

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

Substance Name	Form	Limit / Standard		NOTE	Source
1-DECENE, HOMOPOLYMER HYDROGENATED	Aerosols (thoracic fraction)	TWA	5 mg/m <sup>3</sup>	N/A	ExxonMobil
TRIPHENYL PHOSPHATE		TWA	3 mg/m <sup>3</sup>		ACGIH

**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).

**Biological limits**

No biological limits allocated.

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:

No protection is ordinarily required under normal conditions of use. 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:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**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.

### BASIC PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Liquid

**Color:** Orange

**Odor:** Characteristic

**Melting Point:** N/A

**Freezing Point:** N/D

**Initial Boiling Point / Range:** >316°C (600°F) [Estimated]

**Flammability:** Ignitable

**Lower and Upper Explosion Limit/Flammability Limit:** LEL: 0.9 UEL: 7.0

**Flash Point [Method]:** >218°C (424°F) [ASTM D-92]

**Autoignition Temperature:** N/D

**Decomposition Temperature:** N/D

**pH:** N/A

**Kinematic Viscosity:** 68 cSt (68mm<sup>2</sup>/sec) at 40°C [ASTM D445]

**Solubility in Water:** Negligible

**Partition Coefficient:** n-Octanol/water (log value): > 3.5 [Estimated]

**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]

**Relative Density (at 15.6 °C):** 0.848 [ASTM D4052]

**Relative Vapor Density (Air = 1):** > 2 at 101 kPa [Estimated]

**Particle Characteristics:** Median Size: N/A Size Range: N/A

**OTHER INFORMATION****Pour Point:** -45°C (-49°F) [ ASTM D5950]**Evaporation Rate (n-butyl acetate = 1):** N/D**Oxidizing Properties:** See Hazards Identification Section.**SECTION 10 STABILITY AND REACTIVITY****REACTIVITY:** See sub-sections below.**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****INFORMATION ON TOXICOKOLOGICAL EFFECTS**

<b>Hazard Class</b>	<b>Conclusion / Remarks</b>
<b>Inhalation</b>	
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.
<b>Ingestion</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
<b>Skin</b>	
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.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Serious Eye Damage / Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
<b>Sensitization</b>	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for	Not expected to be a skin sensitizer. Based on assessment of the

material.	components.
Aspiration:Data available.	Not expected to be an aspiration hazard. Based on assessment of the components.
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.

## OTHER INFORMATION

### Contains:

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

See Section 16 for a description of sources for reference data.

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

Material -- Not expected to demonstrate chronic toxicity 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.

**PERSISTENCE AND DEGRADABILITY Not determined.**

**BIOACCUMULATIVE POTENTIAL Not determined.**

**Hazard to the Ozone Layer Not Applicable**

**ECOLOGICAL DATA**

**Ecotoxicity**

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	96 hour(s)	Oncorhynchus mykiss	LL50 1003 mg/l: data for similar materials
Aquatic - Chronic Toxicity	21 day(s)	Daphnia magna	NOELR 1 mg/l: data for similar materials

See Section 16 for a description of sources for reference data.

<b>SECTION 13</b>	<b>DISPOSAL CONSIDERATIONS</b>
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**Information on safe and Environmentally Desirable Disposal or Recycling of Chemicals, Contaminated Containers and Packaging**

**DISPOSAL METHODS**

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. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

**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.**

<b>SECTION 14</b>	<b>TRANSPORT INFORMATION</b>
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**LAND - Precautionary Transportation Measures & Conditions:**

Do not co-load together with dangerous substances categorized in Fire Cat. 1 and/or 6, and/or High Pressure Gases.

NOTE: Comply with applicable laws and regulations.

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

**Marine Pollutant:** No



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**AIR (IATA):** Not Regulated for Air Transport**SECTION 15 REGULATORY INFORMATION**

This material is not considered hazardous according to the Classification of Chemicals based on Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (JIS Z 7252–2019).

**REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS**

Listed or exempt from listing/notification on the following chemical inventories :  
AICS, DSL, IECSC, ISHL, KECI, PICCS, TCSI, TSCA

Special Cases:

Inventory	Status
ENCS	Restrictions Apply

National Laws and Regulations:

Chemical Substances Control Law substances:

Chemical Name	Referenced List	ENCS Number
ETHYL BENZENE	Priority Assessment	3-28,3-60
NAPHTHALENE	Priority Assessment	4-311
PSEUDOCUMENE (1,2,4- TRIMETHYLBENZENE)	Priority Assessment	3-7,3-3427
TOLUENE	Priority Assessment	3-2,3-60
TRICRESYL PHOSPHATE	Priority Assessment	3-2522,3-2613,3- 3363
XYLENES	Priority Assessment	3-3,3-60

Fire Service Law: Category 4, Flammable Liquids, Class III (#4 Petroleum)

Maritime Pollution Prevention Law: Regulated

Mariners Labour Safety and Health Regulation: Regulated

Poisonous and Deleterious Substances Control Law (PDSCL): Not Regulated

Pollutant Release and Transfer Register (PRTR): Not Regulated

Sewage Water Law: Mineral oil (5mg/l max.)

Waste Treatment Law : Controlled Industrial Waste

Water Pollution Control Law: Effluent Regulation (5mg/l max.)

**JAPANESE COMPOSITION INFORMATION**

Industrial Safety and Health Law: Article 57, Chemical substances to be labelled: None.

Industrial Safety and Health Law: Article 57-2, Chemical substances to be notified: None.

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ISHL Enforcement Order, Table 3-1, Manufacturing Permit Chemical Substances: None.

PRTR Class 1 Designated Chemical Substances: None.

PRTR Class 2 Designated Chemical Substances: None.

PDSCL Chemical Substances: None.

**SECTION 16****OTHER INFORMATION**

**SOURCE OF REFERENCE MATERIAL:** Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, CONCAWE Product Dossiers, publications from other trade associations, such as the EU Hydrocarbon Solvents REACH Consortium, U.S. HPV Program Robust Summaries, the EU IUCLID Data Base, U.S. NTP publications, and other sources, as appropriate.

**N/D = Not determined, N/A = Not applicable**

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

H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

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

H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

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

Composition: Component Table information was modified.

Section 01: Company Mailing Address information was deleted.

Section 01: Company Mailing Address information was modified.

Section 08: Exposure Limits Table information was modified.

Section 09: Decomposition Temp C(F) information was added.

Section 09: Decomposition Temp C(F) information was deleted.

Section 09: Flammability (Solid, Gas) information was deleted.

Section 09: Flammability information was added.

Section 09: Flammable Limits - LEL information was added.

Section 09: Flammable Limits - UEL information was added.

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

Section 09: Particle Characteristics information was added.

Section 09: Particle Range information was added.

Section 09: Physical State information was deleted.

Section 09: Pour Point C(F) information was modified.

Section 09: Relative Density information was modified.

Section 09: Vapor Pressure information was added.

Section 10: Reactivity information was added.

Section 11: Aspiration Conclusion information was added.

Section 11: Aspiration Test Data information was added.

Section 11: Carcinogen Conclusion information was added.

Section 11: Carcinogen Test Comment information was added.

Section 11: Carcinogen Test Data information was added.

Section 11: Dermal Irritation Test Data information was added.

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Section 11: Dermal Irritation Test Data information was deleted.  
Section 11: Dermal Lethality Test Data information was added.  
Section 11: Dermal Lethality Test Data information was deleted.  
Section 11: Eye Irritation Test Data information was added.  
Section 11: Eye Irritation Test Data information was deleted.  
Section 11: Inhalation Lethality Test Data information was added.  
Section 11: Inhalation Lethality Test Data information was deleted.  
Section 11: Lactation Conclusion information was added.  
Section 11: Lactation Test Data information was added.  
Section 11: Mutagen Conclusion information was added.  
Section 11: Mutagen Test Comment information was added.  
Section 11: Mutagen Test Data information was added.  
Section 11: Oral Lethality Test Data information was added.  
Section 11: Oral Lethality Test Data information was deleted.  
Section 11: Other Health Effects information was added.  
Section 11: Reproductive Conclusion information was added.  
Section 11: Reproductive Test Comment information was added.  
Section 11: Reproductive Test Data information was added.  
Section 11: Respiratory Sensitization Conclusion information was added.  
Section 11: Respiratory Sensitization Test Data information was added.  
Section 11: Skin Sensitization Conclusion information was added.  
Section 11: Skin Sensitization Test Comment information was added.  
Section 11: Skin Sensitization Test Data information was added.  
Section 11: Target Organ Toxicity - Repeat Conclusion information was added.  
Section 11: Target Organ Toxicity - Repeat Test Comment information was added.  
Section 11: Target Organ Toxicity - Repeat Test Data information was added.  
Section 11: Target Organ Toxicity - Single Conclusion information was added.  
Section 11: Target Organ Toxicity - Single Test Data information was added.  
Section 12: Ecological Information - Bioaccumulation information was added.  
Section 12: Ecological Information - Persistence and Degradability information was added.  
Section 15: Japan Hazard Statement information was modified.  
Section 15: National Chemical Inventory Listing information was modified.

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**Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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