# SAFETY DATA SHEET

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT**

**Product Name:** Kozyvacu Premium Deep Vacuum Pump Oil

**Product Description:** Highly Refined Mineral Oil Base Stock (oil) with Synthetic Hydrocarbon Oil.

**Intended Use:** Lubricant, Vacuum Pump Lubricant

**GHS Product Identifier:** Kozyvacu Premium Deep Vacuum Pump Oil

**Other Means of Identification:** Not Available

**Product Type:** Liquid

**COMPANY IDENTIFICATION**

**Supplier’s Detail:**
Kozyard LLC  
2825 80th ST SE, STE 202  
Mercer Island, WA 98040  
United States

**Manufactured by:**
S-OIL CORPORATION  
S-OIL Bldg., 192 Baekbeom-ro,  
Mapo-gu,  
Seoul 121-805  
Korea: +82-52-231-2256

**Emergency telephone numbers**
USA – Chemtrec: 800-424-9300  
All Others – Chemtrec: +1-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

**OSHA/HCS Status**

Not hazardous. While this material is not considered hazardous by the OSHA hazard Communication Standard (29 CFR 1910.1200) this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

**GHS Label elements**

**Signal word**

No signal word

**Hazard Statements**

No known significant effects or critical hazards

**Precautionary statements**

**General**

Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Avoid contact with skin and eyes.

**Prevention**

Not applicable

**Response**

Not applicable

**Storage**

Not applicable

**Disposal**

Not applicable

**Hazards not otherwise classified**

None Known

**HEALTH HAZARDS**

**Classification of the substance or mixture**

**ACUTE TOXICITY: ORAL - Category 5**

**INHALATION - Category 5**

**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**IF ON SKIN:** Wash with plenty of soap and water.

**Other Hazard:** None known.
U.S.A. Hazardous Material Information System and National Fire Protection Association (U.S.A.)

<table>
<thead>
<tr>
<th>Degree of Hazard</th>
<th>NFPA</th>
<th>HMIS</th>
<th>HAZARD RATINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>B</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note*: This information is based on test data from similar products.

This product is not formulated to contain ingredients which have exposure limits established by regulatory agencies. It is not hazardous to health as defined by the European Union Dangerous Substances/Preparations Directives. Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

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: COMPONENT INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>EINECs/ELINKs #</th>
<th>Percent (% wt)</th>
<th>Symbols /Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>The base oil may be a mixture of the Following:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Hydrotreated Distillate, Heavy Paraffin</td>
<td>64742-54-7, 64742-55-8, 68037-01-4, 151006-62-1</td>
<td>265-157-1, 265-158-7, 500-183-1, 417-070-7</td>
<td>All Combined &gt;99%</td>
<td>IK (None Required)</td>
</tr>
<tr>
<td>2) Hydrotreated Distillate, Light Paraffin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) 1-decene, homopolymer, hydrogenated or other hydrogenated polyalphaolefin Synthetic Hydrocarbon Fluids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proprietary additives</td>
<td></td>
<td></td>
<td>&lt;1%</td>
<td>IK (None Required)</td>
</tr>
</tbody>
</table>

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

None

Explanation of symbols: IK = No Classification Required.

### INGREDIENT COMMENTS

If no EU or no CAS numbers are given for classified components the raw material supplier has applied for / will apply for exemption, have not sent the complete information yet, or there could be no obligation to give the EU or CAS numbers.

### 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:** Wash with soap and water. Remove and launder contaminated clothing before reuse. If irritation develops get medical attention.

**Eye:** 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 PROCEDURES

**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 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.


<table>
<thead>
<tr>
<th>FLAMMABILITY PROPERTIES</th>
<th>Flash Point ASTM D92 (open cup typical)</th>
<th>Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D</th>
<th>Autoignition Temperature: N/D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C (°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAC 46</td>
<td>216 (420)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAC 68</td>
<td>240 (464)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAC 100</td>
<td>260 (500)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 6 : SPILL OR LEAK HANDLING PROCEDURES

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

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabeled containers.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL.

Note: Information about recommended monitoring procedures can be obtained from the relevant agency(ies)/institute(s)

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.
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:

No protection is ordinarily required under normal conditions of use.

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
See Sections 6, 7, 12, 13.

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES
Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

<table>
<thead>
<tr>
<th>Physical Information</th>
<th>Liquid</th>
<th>HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
<td>Density at 20°C</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td>Flash Point typical °C (°F)</td>
</tr>
<tr>
<td>Color</td>
<td>Clear colorless to pale yellow</td>
<td>Flammable Limits</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
<td>Autoignition Temperature</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>ND</td>
<td>Boiling Point ºC (°F)</td>
</tr>
<tr>
<td>OTHER INFORMATION</td>
<td></td>
<td>Vapor Density (Air=1)</td>
</tr>
<tr>
<td>Pour Point ºC (°F)</td>
<td>-12 (10) or below</td>
<td>Vapor Pressure</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>ND</td>
<td>Evaporation Rate (N-Butyl Acetate = 1):</td>
</tr>
<tr>
<td>Viscosity are +/- 10%</td>
<td></td>
<td>Solubility in Water</td>
</tr>
<tr>
<td>Viscosity cSt at 40°C</td>
<td></td>
<td>Oxidizing Properties</td>
</tr>
<tr>
<td>VAC 46</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>VAC 68</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>VAC 100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 10: STABILITY & REACTIVITY

<table>
<thead>
<tr>
<th>STABILITY:</th>
<th>Material is stable under normal conditions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONDITIONS TO AVOID:</td>
<td>Excessive heat. High energy sources of ignition.</td>
</tr>
<tr>
<td>MATERIALS TO AVOID:</td>
<td>Strong oxidizers</td>
</tr>
<tr>
<td>HAZARDOUS DECOMPOSITION PRODUCTS</td>
<td>Material does not decompose at ambient temperatures.</td>
</tr>
<tr>
<td>HAZARDOUS POLYMERIZATION:</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY
Potential acute health effects
- Inhalation: No known significant effects or critical hazards.
- Ingestion: No known significant effects or critical hazards.
- Skin contact: No known significant effects or critical hazards.
- Eye contact: No known significant effects or critical hazards.

PRODUCT
Route of Exposure Conclusion / Remarks

INHALATION
Toxicity: 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.

INGESTION
Toxicity: LD50 > 5000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.

SIN<br>Totoxicity: LD50 > 5000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available. Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.

Eye<br>Irritation: Data available. May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

Route of Exposure Conclusion / Remarks

<table>
<thead>
<tr>
<th>INHALATION</th>
<th>Conclusion /Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity: LC50 &gt; 5000 mg/m³</td>
<td>Minimally Toxic. Based on test data for structurally similar materials.</td>
</tr>
<tr>
<td>Irritation: No end point data.</td>
<td>Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INGESTION</th>
<th>Conclusion /Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity: LD50 &gt; 5000 mg/kg</td>
<td>Minimally Toxic. Based on test data for structurally similar materials.</td>
</tr>
</tbody>
</table>

Skin<br>Totoxicity: LD50 > 5000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available

Eye<br>Irritation: Data available

CHRONIC/OFFER EFFECTS
For the product itself:
Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

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 nonspecific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

CARCINOGENIC EFFECTS:
Contains no carcinogens. Similar compounds essentially non-toxic. No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA), NTP or IARC.
Although there is no specific test data on all the base oil components, the mineral base oil would not be expected to exhibit carcinogenic potential based on what is known of the toxicity of mineral base oils in general. The DMSO extract by IP 346 of the oil is less than 3%. (Typical 0.2% with Maximum 0.5%) Consequently it is not classified as a carcinogen. The base oil in this product is severely hydro-treated by all hydro-processing route. By this refining history would be showed no evidence of carcinogenic potential.

MUTAGENIC EFFECTS: No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

TERATOGENIC EFFECTS/DEVELOPMENTAL TOXICITY: No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryo toxic.

REPRODUCTION TOXICITY: No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a reproductive toxin.

Additional information is available by request.

**OVER – EXPOSURE SIGNS/SYMPTOMS**

**Skin** No known significant effects or critical hazards.

**Ingestion** No known significant effects or critical hazards.

**Inhalation** No known significant effects or critical hazards.

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**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.

**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**

Data for Highly Refined Severely Hydrotreated Base oil for similar materials

<table>
<thead>
<tr>
<th>TEST</th>
<th>Duration</th>
<th>Organism Type</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic - Chronic Toxicity</td>
<td>21 day(s)</td>
<td>Water Flea</td>
<td>NOELR 1.05 mg/l: data for similar materials</td>
</tr>
<tr>
<td></td>
<td>7 days</td>
<td>Fish</td>
<td>NOEC: &gt; 5000mg/L (IUCLID Dataset)</td>
</tr>
<tr>
<td></td>
<td>7 days</td>
<td>Aquatic Invertebrates</td>
<td>NOEC: &gt; 5000mg/L (IUCLID Dataset)</td>
</tr>
</tbody>
</table>

Care should be taken to minimize release of this product into the environment

**Environmental Fate & Distribution**

No Data Available

**Other Typical (not a specification)**

**Persistence & Degradation Toxicity**

No Data Available

Acute Toxicity to Fish:

No Data Available

**Effect on Effluent Treatment**

Product may be partially removed in biological treatment processes

Effect Concentration on Algae:

No Data Available
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.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 13 01 10

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

This material is considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

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 PRESSURIZE, 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 (ADR/RID) : Not Regulated for Land Transport
INLAND WATERWAYS (ADNR) : Not Regulated for Inland Waterways Transport
SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code
AIR (IATA) : Not Regulated for Air Transport

<table>
<thead>
<tr>
<th>ICAO/IATA Classification</th>
<th>ADR/RID Classification</th>
<th>IMO/IMDG Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name: Not regulated</td>
<td>UN number: Not regulated.</td>
<td>Proper shipping name: Not regulated</td>
</tr>
<tr>
<td>IATA Class</td>
<td>ADR/RID Class: Not regulated.</td>
<td>IMDG Class: Not regulated UN number: Not regulated.</td>
</tr>
<tr>
<td>Special Provisions for transport: None Identified</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

USA: No special warning labels are required under OSHA 29CFR 1910.1200. OSHA hazard warnings are not applicable for this product; therefore no OSHA Warnings would appear on the label. No EPA hazard classification code.
SECTION 15: Regulatory Information  Product Component Ingredients

Europe
Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.
EU LABELING: Not regulated according to EC Directives Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.

Classification and labeling have been performed according to EU Directives 67/548/EEC, 1999/45/EC and 2001/58/EC (including amendments) and the intended use.
- Consumer applications.

United States
EPA SARA Title III Chemical Listings
Section 302 Extremely Hazardous Substances: None.
Section 304 CERCLA Hazardous Substances: None.

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

Canada
WHMIS (Canadian Workplace Hazardous Materials Information System)
This product when tested as a whole is not a controlled substance within the meaning of the Hazardous Products Act.

Germany: Water Hazardous Class (WGK): 1 (low hazard to water)

NATIONAL LEGISLATION / REGULATIONS
Ozone depleting chemicals: No ozone depleting chemicals are present or used in manufacture.

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS
Complies with the following national/regional chemical inventory requirements: , DSL, ENCS, TSCA
Special:

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AICS</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>ELINCS</td>
<td>Restrictions Apply</td>
</tr>
<tr>
<td>IECSC</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>KECl</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>PICCS</td>
<td>All components are listed or exempted.</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION
This product safety data sheet was prepared in compliance with Commission Directive 2001/58/EC , 91/155/EEC, 67/548/EEC and 1999/45/EC as well as their relevant amendments, on the approximation of laws, regulations and administrative provisions relative to the classification, packaging and labeling of dangerous substances and preparations.
Prepared by:
Kozyard LLC
2825 80th ST SE
Mercer Island, WA 98040
United States.

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