

SAFETY DATA SHEET

Item Code: N0105m & N0106m & N0109m

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| Section 1. | Identification of the material and the supplier |
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| Item Code: | N0105m & N0106m & N0109m |
| Product: | Vacuum Pump Oil |
| Product Use: | Vacuum Pump Oil |
| | |
| New Zealand Supplier: | Realcold Ltd |
| Address: | 9 Prescott Street Penrose, Auckland |
| Telephone: | 09 526 5700 |
| Fax Number: | 09 526 5721 |
| Emergency Telephone: | 09 526 5700 0800 766 764 (National Poison Centre) |

Date of MSDS Preparation: 14 March 2017 – version 2

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| Section 2. | Hazards Identification |
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As per the manufacturer there are no hazardous components identified.

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| Section 3. | Composition / Information on Ingredients |
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| Ingredients | Wt% | CAS NUMBER. |
|--------------------------------|-----|-------------|
| Lubricant Base Oil (Petroleum) | >95 | Various |
| Additives | >5 | Proprietary |

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| Section 4. | First Aid Measures |
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Routes of Exposure:

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| If in Eyes | Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately. |
| If on Skin | Remove contaminated clothing and wash skin with warm soapy water. Do not scrub. If irritation occurs, get medical assistance |
| If Swallowed | If swallowed, first aid is not normally required, however if symptoms develop call a physician. Never give anything by mouth to an unconscious person. |
| If Inhaled | Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by a qualified personnel. Seek medical assistance. |

Section 5. Fire Fighting Measures

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| Hazard Type | Combustible |
| Hazards from decomposition products | This material may burn, but will not ignite readily. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire. |
| Suitable Extinguishing media | Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing or materials heated above 100 ° C. Carbon Dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. |
| Precautions for firefighters and special protective clothing | For fires beyond the incipient stage, Emergency responders in the immediate hazard area should wear protective gear. Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes. |
| HAZCHEM CODE | 2Z |

Section 6. Accidental Release Measures

This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (See Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material.

Notify fire authorities and appropriate local agencies. Immediate cleanup of any spill is recommended

Section 7. Handling and Storage**Handling**

Do not enter confined spaces such as tanks or pits without following proper entry procedures. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

"Empty" containers retain residue and may be dangerous Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks or other sources of ignition. They may exploded and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum re-conditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage

Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Storage temperatures above 45 ° C may lead to thermal decomposition, resulting in the generation of hydrogen sulfide and other sulfur containing gases. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

| Substance | TWA | | STEL | |
|-----------|-----|-------|------|-------|
| | ppm | mg/m3 | ppm | mg/m3 |
| Oil Mist | | 5 | | 10 |

Workplace Exposure Standard – Time Weighted Average (WES-TWA). *The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure.* Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). *The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply.*

Engineering Controls

If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits , additional ventilation or exhaust systems may be required

Personal Protection

Respiratory:

A certified air purifying respirator with a Type P2 particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits

Protection provided by air purifying respirators is limited (see manufacturer’s respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Skin:

The use of gloves impervious to the specific material handled is advised to prevent skin contact and possible irritation (see manufacturers literature for information on permeability).

Eye/Face:

Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary

Other: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Section 9 Physical and Chemical Properties

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| Appearance | Clear Yellow Liquid |
| Odour | Characteristic Petroleum |
| Flash Point | >196°C |
| Boiling Point | >291°C |
| Vapour Pressure(mm Hg) | <1 |
| Vapour Density (air = 1) | >1 |
| Auto-ignition Temperature | 380°C |
| Percent Volatile by weight | Negligible |
| Specific Gravity | 0.87 – 0.89 |
| Solubility in Water | Negligible |
| Evaporation Rate (nBuAc = 1) | <1 |
| Viscosity | 43-49cSt@40°C |
| Bulk Density | 3.22 kg |

Section 10. Stability and Reactivity

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| Stability of Substance | Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. |
| Conditions to Avoid | Extended exposure to high temperatures can cause decomposition |
| Incompatible Materials | Avoid contact with strong oxidizing agents |
| Hazardous Decomposition Products | Combustion can yield aldehydes and carbon, nitrogen, sulfur and phosphorous oxides. Hydrogen sulfide and alkyl mercaptans may also be released. Thermal decomposition may produce hydrogen sulfide and other sulfur-containing gases at temperatures greater than 45 ° C. |

Section 11 Toxicological Information

Lubricant Base Oil (Petroleum) (CAS# Various)

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including solvent extraction, hydrotreating and dewaxing to remove aromatics and improve performance characteristics. None of the oils used are listed as a carcinogen by NTP, IARC, or OSHA.

Section 12. Ecotoxicological Information

Not evaluated at this time

Section 13. Disposal Considerations

This material under most intended uses would become used oil due to contamination by physical or chemical impurities. RECYCLE ALL USED OIL. Use resulting in chemical or physical change or contamination may also subject it to regulation as hazardous waste. Consult local regulations regarding the proper handling of used oil. In the case of used oil, the intent to discard it may cause the used oil to be regulated as hazardous waste. Contents should be completely used and containers emptied prior to discard. Large empty containers, such as drums, should be returned to the distributor or a drum re-conditioner.

Product Name: Vacuum Pump Oil Item No: N0105m/6m/9m
Date of MSDS: 27 August 2012

Issued by: Realcold Ltd
Tel: 64 9 526 5700

Section 14 Transport Information

This substance is not classified as a Dangerous Good for transport in NZ ; NZS 5433:2007

Section 15 Regulatory Information

As per the manufacturer there are no hazardous components identified.

Section 16 Other Information

1. HSNO Approved Code of Practice: Preparation of Safety Data Sheets, September 2006.

Disclaimer

This document has been issued by Realcold Limited and serves as their Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to Realcold Limited or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While Realcold Limited have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, Realcold Limited accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

The information herein is given in good faith, but no warranty, express or implied is made.

Please contact the New Zealand distributor, Realcold Ltd, if further information is required.

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