

DURAPAC

ENGINEERED FOR RELIABILITY

Data Sheet & MSDS

Durapac Hydraulic Oil Model – DHO Series



1.0 Product Information

DURAPAC – Hydraulic Oil is premium hydraulic oil; Renolin B Plus, for use in all types of hydraulic systems and equipment. It is formulated to HLP standards with anti-rust, anti-oxidant and anti-wear additives.

The function and operational reliability of hydraulic systems depends largely on the quality of the hydraulic fluids used which, apart from transferring forces, must also seal, cool and lubricate. Because hydraulic oils are subject to a variety of stresses, they must fulfil a number of requirements. These must be maintained throughout the service life of the oil and must help combat the formation of undesirable reaction by-products. The minimum requirements, which type HLP hydraulic oils must

fulfil are contained in DIN 51 524, part 2. This standard describes this group of products as follows; HLP hydraulic oils are used mainly in hydraulic systems which, having hydrostatic drives, are subject to high thermal loading, corrosion due to the ingress of water, or need an oil which depending on the pump or hydro drive contains additives to reduce mixed friction wear.

Durapac Hydraulic Oils are based on highly ageing resistant solvent raffinates and fulfil, in many cases even surpass, the minimum requirements made on HLP hydraulic oil.

2.0 Benefits

Excellent oxidation stability and resistance to aging - Oil temperatures of over 80°C can occur in high-pressure systems, especially if the volume of the tank is small. Insufficient oxidation stability can lead to the formation of damaging by-products, which acidify the oil. This in turn causes polymerisation, which increases the viscosity of the oil and leaves lacquer-like deposits on valves and control units. Durapac Hydraulic Oils are based on high grade, special raffinates and contain additives, which improve their resistance to ageing. As these are long-life characteristics, they also increase the service life of the products.

Good demulsifying properties - Operators of large hydraulic systems usually require good separation of dragged-in water or condensation from the hydraulic fluid so that this water can be removed via drainage taps or valves. Durapac Hydraulic Oils rapidly separate water and avoid the formation of water and oil sludge.

Good elastomer compatibility - Elastomers used in hydraulic systems must neither shrink nor swell when in contact with hydraulic oil. To fulfil this specification, Durapac Hydraulic Oils and such elastomers are tested for 168 hours at 100°C (DIN 53 505). The materials tested are SRE-NBR 1 standard reference elastomer (DIN 51 524) and vulcanised butanol acrylonitrile. Seal material manufacturers as a rule use the values obtained from these materials to evaluate the compatibility of other elastomers with the hydraulic fluid being tested. As the values indicate, elastomers show good compatibility with Durapac Hydraulic Oils.

Specifications met by Durapac Hydraulic Oils (Renolin B Plus)

- AFNOR E48-603
- Cincinnati Milacron P-68, P-69, P-70
- US Steel 136, 127
- Denison HF-1, HF-2, HF-0
- Racine, variable volume vane pumps
- Ford M-6C32
- DIN 51 524, part 2
- Vickers 1-286-S, M-2950-S
- General Motors LH-04-1, LH-06-1, LH-15-1
- Jeffrey No. 87
- Lee Norse, 100-1
- BF Goodrich 0152

Excellent corrosion protection - Condensation can form in the machine's oil tank when the hydraulic fluid cools, which in turn, can lead to corrosion and wear. Metallic particles in the oil act as a catalyst, which accelerates the oxidation of the oil. Durapac Hydraulic Oils contains surface-active

ingredients, which wet steels and non-ferrous metal surfaces and protect them from corrosion when water is present.

Good viscosity - temperature behaviour - The more the working temperature of the hydraulic systems varies, the greater is the significance of the oil’s viscosity behaviour. Hydraulic pumps can only generate the specified working pressure if the viscosity of the hydraulic oil remains within a certain range. The good viscosity/temperature behaviour of Durapac Hydraulic Oils guarantees rapid and reliable start-up as well as sufficient viscosity of higher running temperatures. The latter ensures that a protective lubricating film is formed on all moving parts, that reliability is increased and that the oil provides sufficient sealing in the hydraulic system.

Good EP properties / protection against wear - One of the functions of hydraulic oil is to perform complex, wear-reducing lubricating functions in machinery such as pumps, bearings and other highly stressed components. The efficiency and service life of such machinery depends largely on the protection the oil provides in mixed friction zones. Durapac Hydraulic Oils contains extreme power (EP) additives, which reduce friction and thus protect sliding surfaces against wear. The DIN 51 389 “Mechanical testing of hydraulic fluids in rotary vane pumps” tests the anti-wear properties of hydraulic fluids. All Durapac Hydraulic Oils passed this test and all achieved load stage 12 in FZG Gear Rig Test A/8.3/90 (DIN51 354).

Good de-aeration and low foaming - The base oils used in the formulation of Durapac Hydraulic Oils ensure rapid, natural de-aeration. This eliminates problems stemming from too much air being trapped in the oil. Such air is released quickly and the foam, which occurs when this happens, also collapses quickly.

Note - Durapac Hydraulic Oils contains not only high-grade hydraulic oils, but also excellent lubricating oils, which can be used for numerous applications such as gearboxes, bearings and lubricating oils.

3.0 Characteristics

Property	Unit	32
Kinematic Viscosity @100 °C	cSt	5.36
Viscosity Index		100
Specific Gravity @ 15 °C	Kg/L	0.875
Flash Point, COC	°C	190
Pour Point	°C	-27
Total Acid Number	mg KOH/g	1.0
Saponification Number	mg KOH/g	1.2
Sulfated Ash	% w/w	0.2

Appendix A: Material Safety Data Sheet

Material Safety Data Sheet

RENOLIN B Plus Series			
Infosafe™ No.	5FUQE	Issue Date	February 2010
		Status	ISSUED by FUCHS
			BS: 1.9.46

Not classified as hazardous according to criteria of NOHSC

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	RENOLIN B Plus Series
Product Code	1663,1666,1667,1668
Company Name	Fuchs Lubricants (Australasia) Pty Ltd (ABN 88 005 681 916)
Address	49 McINTYRE ROAD SUNSHINE VIC 3020
Emergency Tel.	1800 638 556 (24hr AUST) 0800 154 166 (24hr NZ)
Telephone/Fax Number	Tel: +61 (0)3 9300 6400 Fax: +61 (0)3 9300 6401
Recommended Use	Supplied as a mineral hydraulic oil for use in suitable applications only.
Other Names	None Listed
Other Information	Visit our website: www.fuchs.com.au Orders Freecall (in Australia): 1800 1800 13 Orders Freecall (in New Zealand): 0800 382 476

2. HAZARDS IDENTIFICATION

Hazard Classification	Not classified as a hazardous substance according to the criteria of NOHSC. Not considered a Hazardous Substance according to the Criteria of the New Zealand Hazardous Substances New Organisms legislation. Not classified as a Dangerous Good according to the Australia Dangerous Goods Code.
Irritancy of Product	Not classified as an irritant.

Sensitization of Product Not known to be a sensitiser.

Teratogenicity No teratogenic effects known.

Other Information Used oils and greases may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and environment on disposal. All used oils and greases should be handled with caution and skin contact avoided as far as possible.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization Liquid

Ingredients	Name	CAS	Proportion
	Ingredients determined to be non-hazardous	N\Alloc.	100 %

4. FIRST AID MEASURES

Inhalation Remove victim from exposure - avoid becoming a casualty. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Ingestion Give water to drink. DO NOT induce vomiting. Seek medical attention. If vomiting occurs get immediate medical attention due to aspiration risk.

Skin Wash with plenty of soap and water. If irritation occurs seek medical advice. Remove contaminated clothing and wash before reuse.

Eye Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical advice.

First Aid Facilities Normal washroom facilities are generally suitable. Ensure an eyewash station and safety shower are available and ready for use.

Advice to Doctor Treat symptomatically.

Other Information Keep water and mild soap near work site.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Extinguish fire with the following: Use CO ₂ , dry chemical or foam.
Hazards from Combustion Products	Combustion products may include: a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide, carbon dioxide, soot, oxides of sulfur, and unidentified organic and inorganic compounds.
Specific Methods	Fire fighters to wear self-contained breathing apparatus if risk of exposure to products of decomposition.
Precautions in connection with Fire	If safe to do so, remove containers from path of fire. Keep containers cool with water spray. Avoid spreading liquid and fire by water flooding.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal	<p>Slippery when spilt. Avoid accidents, clean up immediately.</p> <p>CLEAN-UP METHODS - SMALL SPILLAGE (20L or less): Absorb or contain liquid with sand, earth or spill control material.</p> <p>Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum. Scrub contaminated surfaces with detergent solution. Retain washings as contaminated waste.</p> <p>CLEAN-UP METHODS - LARGE SPILLAGE (more than 20L): Transfer to a labelled, sealable container for product recovery or safe disposal. Treat residues as for small spillage.</p> <p>Dispose according to local regulations. PERSONAL PRECAUTIONS: Extinguish naked flames. Remove ignition sources. No smoking. Avoid sparks. Evacuate the area of all non-essential personnel. Take precautionary measures against static discharge. Shut off leaks, if possible without personal risk. Avoid contact with skin, eyes, clothing. Do not breathe vapour. Ventilate contaminated area thoroughly.</p>
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7. HANDLING AND STORAGE

Precautions for Safe Handling	When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Prevent spillages. Ensure the appropriate personal protective equipment is used when handling this material. Ensure a high level of personal hygiene is maintained when using this product. That is; always wash hands before eating, drinking, smoking or using the toilet.
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Conditions for Safe Storage	Keep containers closed at all times. Store in cool place and out of direct sunlight. Store away from oxidizing agents. Check containers regularly for leaks.
Corrosiveness	Not corrosive

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Maintain concentration below recommended exposure limit. Special ventilation is not normally required due to the low volatility of the product at normal temperatures. However, in the operation of certain equipment or at elevated temperatures, mists or vapour may be generated and exhaust ventilation should be provided to maintain airborne concentration levels below the exposure standard or where no exposure standard is allocated, as low as is reasonably practicable.
Respiratory Protection	Respirator not normally required. Airborne concentrations should be kept to lowest levels possible. If vapour, mist or dust is generated and the occupational exposure limit of the product is exceeded, use appropriate AS/NZS 1715/1716 approved half-face filter respirator suitable for organic vapours or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content of the air is unknown.
Eye Protection	Safety glasses, goggles or face shield as appropriate.
Hand Protection	PVC, neoprene or nitrile rubber gloves.
Footwear	Enclosed footwear.
Body Protection	Overalls or similar protective apparel.
Hygiene Measures	Always wash hands before smoking, eating, drinking or using the toilet. If contamination occurs, change clothing. Avoid carrying contaminated rags in pockets or wearing soaked clothing. Discard internally contaminated gloves and footwear. Launder contaminated clothing before reuse.
Special Protective Measures	Will not burn unless preheated. Isolate from sources of heat, naked flame, or sparks.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Appearance	Clear Amber Fluid
Odour	Mild

Melting Point	Less than 0 °C
Boiling Point	Greater than 300 °C
Solubility in Water	Not soluble
Solubility in Organic Solvents	Soluble in petroleum solvents
pH Value	Not relevant
Vapour Pressure	Less than 0.1 kPa
Vapour Density	(Air=1) Greater than 2 (Air = 1)
Colour	Clear yellow/amber
Density	0.85 - 0.89 kg/L @ 15 °C typical
Flash Point	Greater than 140°C (PMCC)
Flammability	Combustible liquid C2 according to AS 1940.
Flammable Limits - Lower	Approximately 1.5%
Flammable Limits - Upper	Approximately 6.0%
Explosion Properties	Not considered an explosion risk under normal conditions of use
Kinematic Viscosity	Viscosity range from 29 - 110 mm ² /s @ 40 °C
Other Information	These physical data and other properties do not constitute a specification

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of use
Incompatible Materials	Strong oxidising agents
Hazardous Reactions	Will react with strong oxidising agents.
Hazardous Polymerization	Will not occur

11. TOXICOLOGICAL INFORMATION

Toxicology	Information No toxicology data available for this product.
Inhalation	Inhalation of mists or aerosols can produce respiratory irritation.
Ingestion	Not normally considered to be a hazard by ingestion at appropriate usage. Ingestion may cause slight stomach irritation and discomfort.
Skin	Will have a defatting effect on the skin. Contact with skin may result in irritation.
Eye	May cause watering of eyes.
Chronic Effects	Prolonged or repeated exposure may result in irritation, with the possibility of dermatitis.
Reproductive Toxicity	Reproductive toxicity not expected.
Mutagenicity	Mutagenic effects not known.
Carcinogenicity	Product is not a known carcinogen.

12. ECOLOGICAL INFORMATION

Ecotoxicity	No data available.
Persistence/Degradability	No data available.
Environment Protection	Do not allow material to enter drains or waterways.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations	Dispose of waste according to federal, EPA, state and local regulations.
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14. TRANSPORT INFORMATION

Transport Information	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
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15. REGULATORY INFORMATION

Poisons Schedule Not Scheduled

Packaging & Labelling No special packaging or labelling requirements.

16. OTHER INFORMATION

Contact Person/Point Laboratory Manager +61 (0)3 9300 6400
Research & Development Chemist +61 (0)3 9300 6400
New Zealand Office +64 9 828 3255

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If you are an employer it is your duty to tell your employees, and any others that may be affected, of any hazards described in this sheet and of any precautions that should be taken.

Material Safety Data Sheets are updated frequently. Please ensure you have a current copy.

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