



# Material Safety Data Sheet

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Revised:	25 06 2008
Rev. No.:	1

**Product: USED  
LUBRICATING OIL**

## 1. PRODUCT AND COMPANY IDENTIFICATION

### APPLICATION

Used lubricating oil or waste oil typically from the crankcase of internal combustion engines (which run on diesel and petrol). Used oil is produced by other operating equipment and includes products such as hydraulic oils, gear and transmission oils. It is not recommended that used oils from transformers and switchgear be mixed with other waste oils but this MSDS also accommodates the possibility of unwanted dumping of used transformer oils with these oils.

### COMPANY IDENTIFICATION

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## 2. COMPOSITION

Material is of a variable composition depending on the composition of the original oil and the degree of degradation.

This material is a complex mixture of paraffinic, naphthenic and aromatic petroleum hydrocarbons that may contain one or more of the following:

carbon deposits, sludge, aromatic and non-aromatic solvents, water (as a water-in-oil emulsion), glycols, wear metals and metallic salts, silicon-based antifoaming compounds, fuels, polycyclic aromatic hydrocarbons (PCAH's) and miscellaneous lubricating oil additive materials.

Used engine oil may be contaminated with fuel causing it to become a flammable material. Hazardous materials such as solvents and chlorinated chemicals may be found in used lubricating oil from unwanted dumping. There have been instances where transformer oils containing PCBs (polychlorinated biphenyls) have been mixed with used lubricating oils.

Dangerous Substances	% (m/m)	Risk Phrase
Aromatics	<1.5	Carcinogen



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### 3. HAZARD IDENTIFICATION

Inflammable liquid; may be fatal if inhaled; harmful if swallowed or if absorbed through skin; probable carcinogen.

**WARNING: AVOID PROLONGED REPEATED CONTACT WITH USED MOTOR OIL. IF SKIN CONTACT OCCURS, WASH EXPOSED AREAS WITH SOAP AND WATER. LAUNDRY CONTAMINATED CLOTHING.**

*Long Term Toxic Effects:* Suspected carcinogen. Contains component(s) that may cause cancer. Risk of cancer depends on duration and level of exposure.

*Used Oils from Transformers and switchgear:* Polychlorinated biphenyls (PCBs) were often used in old transformer switchgear equipment; there is a possibility that oil drained from older equipment may have become contaminated with PCBs.

*Used Quench Oils:* Quench oils will degrade in service leading to the generation of decomposition products which will contaminate the oil. These may include polycyclic aromatic hydrocarbons (PAH), some of which have been shown by experimental studies to induce skin cancer.

*Used oils from refrigerant compressors:* Used oils may be contaminated with refrigerant gases, some of which may be hazardous (e.g. ammonia).

*Used dielectric fluids:* Small quantities of PAH's, some of which are known to be carcinogenic, may be generated during use. Avoid skin contact with used fluid and contaminated fibres.

*Used neat metal working oils:* During metal working solid particles from work pieces or tools will contaminate the product and may cause abrasions to the skin. Where such abrasions result in a penetration of the skin, first aid treatment should be applied as soon as reasonably possible. The presence of certain metals in the work place or tools, such as chromium, cobalt, and nickel, can contaminate the product and may induce allergic skin reactions, especially if personal hygiene is inadequate.

Used oils may contain fuel which may reduce the flash point and make the material flammable. **It is probably necessary to assign R10 – Flammable, as the presence of fuels at greater than 3.5% w/w in the used oil will potentially reduce the flash point to below 55°C.**



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## 4. FIRST AID MEASURES

	Symptom & Effect	First Aid
Skin	Prolonged and repeated contact with skin may cause severe irritation; Toxic if absorbed through the skin; potentially carcinogenic	Wash with soap and water until no odour remains. Remove contaminated clothing and wash underlying skin as soon as possible.
Eyes	Contact with eyes may cause redness, tearing, blurred vision and moderate irritation.	Flush eyes with clean water for 15 minutes. Seek medical advice if irritation persists.
Ingestion	Harmful or fatal if swallowed. Ingestion of this product may cause central nervous system effects, abdominal discomfort, nausea and diarrhoea	If victim is alert, give large amounts of water or milk, seek medical advice. Small amounts can be washed from mouth until no taste remains. If advice cannot be obtained, take person with container and label to nearest emergency treatment centre. Never give anything by mouth to an unconscious person.
Inhalation	Excessive exposure may cause respiratory tract irritation. Repeated prolonged exposure to high concentrations may lead to central nervous system effects, headaches, dizziness and loss of co-ordination.	Immediately remove to fresh air. Give oxygen if required. Seek medical advice if required.

*Advice to doctor:* Gastric lavage by qualified medical personnel may be considered, depending on the quantity of material that has been ingested.

## 5. FIRE FIGHTING MEASURES

**Specific hazard: Combustible liquid. Emits toxic fumes under fire conditions. This material is harmful to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.**

*SMALL FIRES:* Use CO<sub>2</sub>, foam or dry chemical.

*LARGE FIRES:* Use CO<sub>2</sub>, fluoro protein foam or dry chemicals to extinguish the fire. Use water to cool fire-exposed containers / structures and to protect personnel.

**Avoid spraying directly** into the containers because of the danger of boil over. Trained personnel wearing approved breathing apparatus should deal with fires in confined spaces. Combustion may release harmful chemicals; utilise respirators; avoid low-lying areas.

*EXPLOSIONS HAZARDS:* For fires involving this material do not enter any enclosed or confined space without self-contained breathing apparatus to protect against the hazardous effects of combustion products or oxygen deficiency.



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## 6. ACCIDENTAL RELEASE MEASURES

Full protective clothing, rubber gloves (PVC, Neoprene, Nitrile, or Viton), gumboots and respirator to be worn. Shut off leaks. Remove all sources of heat or flame. Control spill by use of booms, sand, oil-absorbent material or any other suitable available medium. Recover as much free product as possible using pumps or mechanical means. Absorb residue with oil-absorbent material, sand or other absorbent material. Ensure that the product does not enter the storm water drains or waterways. Sweep up and place in disposable container. Scrub contaminated area with detergent and water using a stiff broom.

*Environmental precautions:* Protect drains from potential spills to minimise contamination. Do not wash product into drainage system. Contact the appropriate authorities in all cases where the consequences cannot be quickly and effectively controlled. In the case of spillage on water, prevent the spread of the product by the use of suitable barrier equipment. Recover product from the surface. Protect environmentally sensitive areas and water supplies. In the case of spillage at sea approved, dispersants may be used where authorised by the appropriate government / regulatory authorities. Regular surveillance on the location of the spill should be maintained.

## 7. HANDLING AND STORAGE

*Handling:* Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate. Full protective clothing should be worn when handling the product. A high standard of personal hygiene is essential. Application of protective hand creams may be beneficial. Wash hands thoroughly after use, and always wash hands before eating, drinking and smoking. Change heavily contaminated clothes as soon as reasonably possible and launder before re-use. Wash any contaminated underlying skin with soap and water. Avoid, as far as reasonably practicable, inhalation of mists, fumes or vapour generated during use. Take particular care to avoid prolonged skin contact with used engine oils.

*Handling temperature:* Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimised. Water contamination should be avoided. Misuse of empty containers can be hazardous.

*Storage:* DO NOT cut, weld or drill containers. Residue may ignite with explosive violence if heated sufficiently. Do not pressurise or expose to open flames or heat. Store under cover away from strong oxidisers and ensure containers are closed and drum bungs are in place. Incompatible with sulphuric acid, nitric acid, caustics, aliphatic amines and amides. Keep away from children. Store in accordance with local regulations.



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*Storage conditions:* Storage conditions should comply with SABS Code 0131:1979-2 and SANS Code 10089:2003-1. Product should be stored in a well-ventilated area. Sparks, flames and other sources of ignition near the product should be avoided. Do not eat, drink or smoke in storage area.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:	OHSA 16 mg/m <sup>3</sup> TWA OEL-CL
Controls:	Store in accordance with SABS089:1999-1 or SABS0131:1979 Ensure adequate tank ventilation
Personal Protection:	If engineering controls and work practices are not effective in controlling this material, then wear suitable personal protection equipment including overalls, impervious gloves, respirators, safety goggles, safety boots or gumboots.

- *Eyes*

No special eye protection is mandated but safety glasses with side shields can be recommended when handling used oils.

- *Skin*

Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin several times daily with soap and water and laundering or dry cleaning soiled work clothing at least weekly.

Any routine contact with used motor oil should require the use of protective clothing such as gloves or apron made of neoprene, nitrile, or n-butyl rubber suitable for the application.

- *Inhalation*

Respiratory protection is normally not required. However, if operating conditions create airborne concentrations which exceed the recommended exposure standard(s), the use of an approved respirator is recommended.

Wear approved respiratory protection such as toxic dust, mist and fume respirator.

- *Ventilation*

Use adequate ventilation to keep the airborne concentrations of this material below the ACGIH TLV for mineral oil mists. Local exhausts' ventilation and/or enclosure of the process is preferred in these cases.

- *Exposure Limits*

Due to possible carcinogenic effects, exposure should be reduced to the lowest feasible level.



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## 9. PHYSICAL AND CHEMICAL PROPERTIES

	Test method	Units	Typical value
Used lubricating oils			
Physical state			Black oil, slightly oily odour
Density @ 20°C	ASTM D 4052	Kg/l	0.89
Flashpoint @ 101.325kPa	ASTM D 93	°C	>60.5°C (depends if contaminated with fuel or solvent)
Solubility in water		Mass @ 20°C	Varies, usually <0.1%
Viscosity @ 40°C	ASTM D 445	Mm <sup>2</sup> /s	80
Boiling point		°C	~185°C
Water	ASTM D95	%	10-20
Ash	ASTM D482	%	1.0
Fuel solvents	ASTM D322	%	>3.5
Elemental analysis	Atomic absorption	ppm (mg/l)	
Sulphur			7300
Calcium			1150
Zinc			650
Lead			140
Phosphorous			600
Iron			100
Magnesium			65
Sodium			55
Silicon			50
Boron			40
Manganese			15
Copper			20
Molybdenum			15
Aluminium			15
Barium			1<5
Chromium, Tin, Nickel, Vanadium			<5

## 10. STABILITY AND REACTIVITY

Partially volatile at temperatures in excess of 30°C; avoid strong oxidisers. Incompatible with sulphuric acid, nitric acid, caustics, aliphatic amines and amides.

*Products of combustion:* Carbon monoxide, carbon dioxide, and aldehydes and ketones, combustion products of nitrogen and sulphur.

*Conditions to avoid:* Strong monoxides such as chlorates, nitrates, peroxides.



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## 11. TOXICOLOGICAL INFORMATION

Some components of the product are suspected human carcinogens. Potential harmful effects to liver, kidneys, heart, lungs and nervous system may result from chronic over-exposure. Some of the components of the product have been associated with immunological, reproductive, fetotoxic and genotoxic effects. Brief intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water. Avoid prolonged contact with used motor oil.

### ▪ **Acute Toxicity**

Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.

Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis and should be avoided.

Harmful if swallowed.

As with all such products containing potentially harmful levels of PCAH's, prolonged or repeated skin contact may eventually result in dermatitis or more serious irreversible skin disorders, including cancer.

At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility. It may be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.

### ▪ **Chronic Toxicity**

#### *Used motor oils*

Combustion products resulting from the operation of internal combustion engines contaminate engine oils during use. Used motor oil may contain hazardous components which have been shown to cause skin cancer in mice following repeated application and continuous exposure. Frequent or prolonged contact with all types and makes of used engine oil must therefore be avoided and a high standard of personal hygiene maintained. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

#### *Transformer / switchgear oils*

Used transformer / switchgear oil may contain hazardous components that have limited evidence for human carcinogenicity. These products should be stored and handled separately from other used oil.





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## 12. ECOLOGICAL INFORMATION

- *Environmental effects*

This material is inherently biodegradable. Where present, components such as polychlorinated biphenyls and terpenyls (PCB's and PCT's) are harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment. Spillages may penetrate the soil causing groundwater contamination. Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

## 13. DISPOSAL CONSIDERATIONS

- *Waste Disposal*

Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material. Do not flush to drain / storm water system.

- *Remarks*

This material may present risks common to oil spills. Contact oil spill response group and applicable government agencies if a spill occurs.

## 14. TRANSPORT INFORMATION

UN no./ SIN	1268	3802	N/A
Name of Product	Petroleum distillate (N.O.S.)	Waste Environmental Hazardous Substance (N.O.S.)	Low Hazard
ICS:	Class 3: Group III	Not determined	N/A
IMDG Code	Class 3	Not known	N/A
Marine Pollutant:	Yes	Yes	Environmental hazard

## 15. REGULATORY INFORMATION

National Legislation	National Road Traffic Act 1996 National Road Traffic Regulations 1999 Hazardous Substances Act 1973 Occupational Health and Safety Act 1993; Reg1179 Hazardous Chemical Substances
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Respirator information: Respirators must follow AS/NZS 1715/1716 standard for approved respirators. In the absence of local approved authorities, follow U.S. NIOSH/MSHA, U.K. BSI, or joint Australia-New Zealand AS/NZS 1715/1716.

### *Risk Phases*

R10 – Flammable

R45 – May cause cancer

R52/53 – Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## **16. OTHER INFORMATION**

To the best of our knowledge, the information provided in this MSDS is correct. Access to this information is also being provided via the Internet so that it can be made available to as many potential users as possible. We do not assume any liability for consequences of the use of this information since it may be applied under conditions beyond our control or knowledge. Also it is possible that additional data could be available after this MSDS was issued.

Certain hazards are described herein; however these may not be the only hazards that exist. All materials may present unknown hazards and should be used with caution. Customers are encouraged to review this information, follow precautions, and comply with all legislation regarding the use and disposal of the product. For specific technical data or advice concerning this product as supplied in your country please contact:

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The final determination of the suitability of any material is the sole responsibility of the user.

MSDS content extracted from ROSE and FFS Refiners MSDS's for Used Lubricating Oils.