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## **MATERIAL SAFETY DATA SHEET (MSDS) USED LUBRICATING OIL**

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# MSDS USED LUBRICATING OIL

## INDEX

1. PRODUCT AND COMPANY IDENTIFICATION
2. COMPOSITION
3. HAZARD IDENTIFICATION
4. FIRST-AID MEASURES
5. FIRE FIGHTING MEASURES
6. ACCIDENTAL RELEASE MEASURES
7. HANDLING AND STORAGE
8. EXPOSURE CONTROLS/PERSONAL PROTECTION
9. PHYSICAL AND CHEMICAL PROPERTIES
10. STABILITY AND REACTIVITY
11. TOXICOLOGICAL INFORMATION
12. ECOLOGICAL INFORMATION
13. DISPOSAL CONSIDERATIONS
14. TRANSPORT INFORMATION
15. REGULATORY INFORMATION
16. OTHER INFORMATION

# MSDS

## USED Lubricating Oil

### 1. PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Used Oil

#### APPLICATION:

Used lubricating oil or waste oil typically from the crankcase of internal combustion engines (mainly run on petrol or diesel). Used oil is also produced and collected from 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.

#### COMPANY IDENTIFICATION

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### 2. COMPOSITION

Material is of 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 (PAH's) and miscellaneous lubricating oil additive materials. In the unlikely event that used transformer oils are mixed with other waste oil then polychlorinated biphenyls and terpenyls (PCB's/PCT's) may also be present.

### 3. HAZARD IDENTIFICATION

Used engine oils may contain hazardous components (Polycyclic aromatic hydrocarbons, PAH's) which have the potential to cause skin cancer. See Toxicological Information, section 11 of this Material Safety Data Sheet.

Used oils may contain components that are harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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.**

#### **4. FIRST AID MEASURES**

- *Eyes*

Flush eyes immediately with fresh water for at least 15 minutes.

Obtain medical advice if any pain or redness develops or persists.

- *Skin*

Wash skin thoroughly with soap and water. Remove contaminated clothing and wash underlying skin as soon as reasonably practicable.

- *Ingestion*

If swallowed and person is conscious, give water or milk. DO NOT make person vomit except on advice of medical personnel. If advice cannot be obtained, take person with container to nearest emergency treatment centre. Never give anything by mouth to an unconscious person.

- *Aspiration*

Aspiration of product is unlikely, but should it occur, transport casualty to hospital immediately.

- *Inhalation*

If inhalation of mists, fumes, or vapour causes irritation to the nose or throat, or coughing, remove to fresh air. If symptoms persist obtain medical advice.

- *Advice to Doctor*

Gastric lavage by qualified medical personnel may be considered, depending on quantity or material 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.**

Extinguish using foam, dry powder or water fog. DO NOT USE WATER JETS. Avoid spraying directly into storage containers because of the danger of boil over. Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus **and protective clothing to prevent contact with skin and eyes**. Water may be used to cool nearby exposed areas/objects/packages.

### *Explosion 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.

## **6. ACCIDENTAL RELEASE MEASURES**

It may be necessary to evacuate the contaminated area in case of serious spills or leaks.

### ***Methods for cleaning up***

Contain and recover spilled material using sand or other suitable inert material.

- *Precautions*

It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated. Spilled material may make surfaces slippery.

- *Environmental Precautions*

Protect drains from potential spills to minimize 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 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 authorized by the appropriate governmental/regulatory authorities. Regular surveillance on the location of the spillage should be maintained.

- *In Case of Spill*

Stop the source of the leak or release and contain spill if possible. Ventilate area. Use respirator and protective clothing as discussed in this MSDS. Cover spill with a generous amount of inert absorbent. Use a stiff broom to mix thoroughly.

Sweep up and place in a disposable container. Scrub contaminated area with detergent and water using a stiff broom. Pick up liquid with additional absorbent and place in a disposable container. Prevent contamination of groundwater or surface water.

## **7. HANDLING AND STORAGE**

- *Handling and Precautions*

Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate.

If skin contact is likely, wear impervious protective clothing and/or gloves. High standards of personal hygiene and plant cleanliness must be maintained. Wash hands thoroughly after use, and always wash hands before eating, drinking and smoking, and before and after using the toilet.

Change heavily contaminated clothing as soon as reasonably practicable and launder before re-use. Wash any contaminated underlying skin with soap and water.

The application of barrier cream on the hands before commencing work may be helpful. After washing, the application of a suitable conditioning cream may help prevent cracking, fissuring or dryness of the skin.

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.

- *Storage Conditions*

Keep out of reach of children. Store under cover away from heat and sources of ignition. Keep containers tightly closed. Used lubricating oil should be stored in accordance with local regulations and should be separated from other waste streams such as coolants, brake fluids, degreasers and solvents.

- *Handling and Storage*

Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided. Misuse of empty containers can be hazardous. DO NOT cut, weld, or drill containers. Residue may ignite with explosive violence if heated sufficiently. Do not pressurize or expose to open flames or heat. Keep container closed and drum bungs in place and label correctly with appropriate hazardous waste signage where applicable

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

- *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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| Grades: Used Lubricating Oil | Test method       | Units              | Typical Values   |
|------------------------------|-------------------|--------------------|--|
| Physical State               |                   |                    | Liquid   |
| Colour                       |                   |                    | Black  |
| Odour                        |                   |                    | Oily/Oxidised  |
| Density at 20°C              | ASTM D 4052       | kg/L               | Varies, usually below 0.9                                  |
| Flash Point (PMCC)           | ASTM D 93         | °C                 | >60 (will be reduced if Contaminated with fuel or solvent) |
| Solubility in Water          |                   | Mass @ 20C         | Varies, usually <0.1%                                      |
| Viscosity at 40°C            | ASTM D 445        | mm <sup>2</sup> /s | 80   |
| Water                        | ASTM D95          | %                  | 10-20  |
| Ash                          | ASTM D482         | %                  | 1.0  |
| Fuel Solvents                | ASTM D322         | %                  | >3.5   |
| Elemental Analysis           | Atomic Absorption |                    | ppm (mg/l)   |
| Sulphur (S)                  |                   |                    | 7300   |
| Calcium (Ca)                 |                   |                    | 1150   |
| Zinc (Zn)                    |                   |                    | 650  |
| Lead (Pb)                    |                   |                    | 140  |
| Phosphorous (P)              |                   |                    | 600  |
| Iron (Fe)                    |                   |                    | 100  |
| Magnesium (Mg)               |                   |                    | 65   |
| Sodium (Na)                  |                   |                    | 55   |
| Silicon (Si)                 |                   |                    | 50   |
| Boron (B)                    |                   |                    | 40   |
| Manganese (Mn)               |                   |                    | 15   |
| Copper (Cu)                  |                   |                    | 20   |
| Molybdenum (Mo)              |                   |                    | 15   |
| Aluminium (Al)               |                   |                    | 15   |

The above data represents an average taken from a range of typical values for this material. When precise physical & chemical properties are needed these should be obtained from analysis of a representative sample of the material in question

## 10. STABILITY AND REACTIVITY

- *Hazardous Polymerizations*  
DO NOT OCCUR

- *Products of Combustion*

Carbon monoxide, carbon dioxide, and aldehydes and ketones, combustion products of nitrogen or sulphur.

- *Conditions to Avoid*

Strong monoxides such as chlorates, nitrates, peroxides, etc.

## **11. TOXOLOGICAL INFORMATION**

- **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 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*

Use 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.

## **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 ground water 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.

- *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**

Used oils should be classed under Environmentally Hazardous Substance class as:

UN Number: 3082

Dangerous Goods Class: Class 9 (Miscellaneous dangerous substances and articles)

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Used Oil)

Hazchem Code: 3Z

Additional Information: None determined.

#### 15. **REGULATORY INFORMATION**

Transporting Diesel and other Environmentally Hazardous Substances (UN 3077 and UN 3082). Land Transport Rule: Dangerous Goods 2005 and Land Transport Rule: Dangerous Goods Amendment 2010. [www.NZTA.govt.nz](http://www.NZTA.govt.nz)

##### *Respiratory 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. **ADDITIONAL INFORMATION**

To the best of our knowledge, the information provided in this MSDS document 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. The ROSE Foundation does 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 made available after this MSDS is 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 applicable laws and regulations regarding the use and disposal of this product. For specific technical data or advice concerning this product as supplied in your area of operation please contact:

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