

# MATERIAL SAFETY DATA SHEET

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Date Issued: 8 September 2003

## Identification

Use: Used as Boiler Fuel

Not Classified as hazardous according to criteria of Worksafe Australia

Company: **Coast and Valley Oil Distributors**  
**15 Apprentice Drive**  
**BERKELEY VALE    NSW    2269**

UN No:            **None**  
Main Class:        **None**  
Subsidiary Risk:   **None**  
Poisons Schedule: **None**  
Hazchem Code:    **None**  
CAS RN No:        **68476-77-7**

## PRODUCT PROPERTIES

**Appearance and Odour** : Dark Brown to Black oily liquid, does not mix well with water but can hold up to 10 to 15% of free water. Mixes with hydrocarbon and many other organic solvents. Residual Oils are manufactured in whole or in part from distillation residues from refinery processing. Residual oils are complex mixtures of relatively high molecular weight compounds and are difficult to characterise in detail. Molecular types include asphaltenes, polar aromatics, naphthalene aromatics, aromatics, saturated hydrocarbons and heteromolecules containing sulphur, oxygen, nitrogen and metals.

Most blending stocks of residual fuel oils are likely to contain 6% or more of four to six ring condensed aromatic hydrocarbons. In residual fuel oils, the identities and concentration of PAHs depends on the nature and amount of the low viscosity blending stocks and the proportions of virgin and cracked residues used in their production. If the blending stocks are primarily atmospheric or vacuum residues, the concentration of three ring to seven ring aromatic hydrocarbons are likely to be in the order of 6 - 8%. If larger quantities of heavily catalytically cracked components are used, the levels may approach 20%. One of the blending stocks, catalytically cracked clarified oil has been reported to contain 58% three to five ring aromatic hydrocarbons and 22% carbazoles and benzocarbazoles.

**Solubility in Water (g/l)** : Generally Immiscible but will depend on the stock at the time, may hold 10% Free water

<i>Property</i>	<i>Value</i>	<i>Temp</i>
Specific Gravity	0.9 approx	
Melting Point (Deg C)	not applicable	
Vapour Pressure (kPa)	Negligible	
Boiling Point (Deg C)	>180	
Flash Point (Deg C)	> 200	
Evaporation Rate	Not available	
Vap Dens (Air=1)	Not available	

### Fire/Explosion Hazard

Flash Point  
Autoignition  
% Volatiles  
LEL  
DEL

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## PRODUCT INGREDIENTS

<i><u>Ingredient</u></i>	<i><u>Proportion</u></i>	<i><u>Method</u></i>	<i><u>CAS No</u></i>
Used Mineral Oil	>95%		Not available
polycyclic aromatic hydrocarbons (PAHs) including dibenz[a,h]acidine	<5%		Various  226-36-B

## Health Hazards

### Chronic Health Effects

Oil may contact the skin or be inhaled. Extended exposure can lead to eczema, inflammation of the hair follicles, pigmentation of the face and warts on the soles of the feet. Exposure to oil mists can cause asthma, pneumonia and scarring of the lungs. Oils have been linked to cancer of the skin and scrotum. Compounds that are less viscous and with smaller molecular weights are more dangerous. There may be liver damage and the lymph nodes may be affected; heart inflammation can occur at high doses.

High boiling residues of petroleum process streams produced a significant number of benign and malignant skin tumours after application to the skin of mice. Appreciable concentrations of polynuclear aromatic hydrocarbons (PAHs) may be present in residual fuels because of the common practice of using both cracked and uncracked residues in their manufacture.

## FIRST AID

### Swallowed

If swallowed, **do not** induce vomiting. seek medical advice. If vomiting occurs lean patient forward or place on the left side (head-down position, if possible) to maintain open airway and prevent aspiration.

Observe patient carefully.

Never give liquid to a person showing signs of being sleepy or with reduced awareness.

Give water (or milk) to rinse out mouth, then provide liquid slowly and only as much as the casualty can comfortably drink.

Seek Medical Advice.

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## Eye

Flood eyes with plenty of fresh running water for 20 minutes.

If irritation occurs seek medical advice.

Removal of contact lenses after an eye injury should only be undertaken by a medical professional.

## Skin

Remove contaminated clothing and wash skin thoroughly with soap and water.

## Inhaled

Remove contaminated person from the contaminated area lay patient down and keep warm and rested

Seek medical advice. If not breathing apply artificial respiration and seek **urgent** medical assistance.

Items such as false teeth, should be removed, which may block airway, prior to commencing first aid.

## Advice to Doctor

## PRECAUTIONS FOR USE

### Exposure Standards

Treat symptomatically.

Heavy and persistent skin contamination over many years may lead to dysplastic changes. Pre-existing skin disorders may be aggravated by exposure to this product.

In general, emeala induction is unnecessary with high viscosity, low volatility products, i.e. most oils and greases. High pressure accidental injection through the skin should be assessed for possible incision, irrigation and/or debridement.

NOTE: injuries may not seem serious at first, but within a few hours tissue may become swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Product may be forced through considerable distances along tissue planes.

### Precautions for Use

Worksafe Exposure Standard: time weighted average (PEL TWA) 5mg/m<sup>3</sup> (oil mist) [OSHA Z1]short term exposure limit (STEL) 10mg/m<sup>3</sup> (oil mist)

TLV TWA 5mg/m<sup>3</sup>, STEL 10mg/m<sup>3</sup>

NOTICE OF INTENDED CHANGE

TLV TWA 0.2 mg/m<sup>3</sup> inhalable fraction A2

WARNING: This substance has been classified by the ACGIH as A2

Suspected Human Carcinogen

### Exposure Standards for the Mixture

"Worst Case" computer-sided prediction of spray/Mist or fume/dust components and concentration.

Composite Exposure Standard for mixture (TWA) 0.1133mg/m<sup>3</sup>

Operations which produce a spray/mist or fume/dust. Introduces particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" consideration deem the individual to be over "overexposed".

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<b>Component</b>	<b>Breathing Zone ppm</b>	<b>breathing Zone mg/m3</b>
dibenz[a,h]acridine	0.0022	0
polycyclic aromatic hydrocarbons	0.1111	5

## Ingredient Data

Polycyclic aromatic Hydrocarbons (as benzene solubles)

TVL TWA : 0.2 mg/m3 (A1)

WARNING: Benzene solubles are classified by ACGIH as A1-  
CONFIRMED HUMAN CARCINOGEN

ES TWA: 0.2 mg/m3 Carcinogen Category 1

WARNING: Benzene solubles are classified by Worksafe as Category 1-  
Established Human Carcinogen.

**Dibenz[a,h]acridine** Dusts not otherwise classified, as inspirable dust:

ES TWA: 10 mg/m3

Particulate (insoluble or poorly soluble) Not otherwise specified (P.N.O.C.)

TLV TWA: 10mg/m3 inhalable particulate

TLV TWA: 3 mg/m3 Respirable particulate

OEL-Sweden, United Kingdom: 10 mg/m3 total dust, 5 mg/m3 respirable dust

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.'s has the following characteristics;

Scar Tissue (collagen) is not synthesised to any degree, tissue reaction is potentially reversible

Extensive concentrations of P.N.O.C.'s may seriously reduce visibility causing unpleasant deposits in the eyes, ears and nasal passages, contribute to skin or mucous membrane injury by chemical or mechanical action per se, or by rigorous skin cleansing procedures for their removal. [ACGIH]

This limit does not apply:

To brief exposure to higher concentrations, nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which are insoluble or poorly soluble in water (or, preferably, in aqueous lung fluid (if data is available) and have a low toxicity (i.e. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, causing immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload.

## NOTICE OF INTENDED CHANGE

WARNING : This substance is classified by the NOHSC as category 1 ESTABLISHED HUMAN CARCINOGEN  
CEL TWA 0.005 mg/m3 (skin) (as analogue for Swedish OEL)

NOTE: Russian OEL STEL: 0.00015mg/m3

## ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of over exposure exists, wear SAA approved respirator, correct fit is essential to obtain adequate protection. Provide adequate ventilation in the warehouse or

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closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contamination.

Type of Contaminant	Air Speed
Solvent, Vapours, degreasing etc. evaporating from tank (in still air)	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyor transfers, welding, spray drift, plating acid fumes, pickling(released at low velocity into zone active generation)	0.5 - 1 m/s (100-200 f/min)
Direct spray, spray painting in shallow booths, drum filling, conveyor loading crusher dusts, gas discharge(active generation into zone of rapid air motion)	1 - 2.5 m/s (200 - 500 f/min)
Grinding, abrasive blasting, tumbling, high speed wheel generated dusts(released at high initial velocity into zone of very high rapid air motion)	2.5 - 10 m/s (500 - 2000 f/min)

**Within each range the appropriate value depends on:**

## **Lower end of the Range**

1. Room air currents minimal or favourable to capture
2. Contaminants of low toxicity or of nuisance value only
3. Intermittent, low production.
4. Large hood or large air mass in motion

## **Upper end of the Range**

1. Disturbing room air currents
2. Contaminants of high velocity
3. High production, heavy use
4. Small hood local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2-m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

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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 vapours may occur and exhaust ventilation should be provided to maintain airborne concentration levels below the exposure standards or where no exposure standard is allocated, as low as is reasonably practicable.

## **Personal Protection**

Avoid contact with the skin and eyes, and avoid breathing vapours or mists. When exposure is likely, personal protection in a combination appropriate to the degree and nature of exposure, should be selected from the following list:

- (1) Eye protection
- (2) PVC Gloves
- (3) PVC Apron and sleeves or full PVC Covering
- (4) PVC or rubber boots

Where the concentration of vapour or mist is expected to approach the exposure limits, the following additional equipment is recommended:

(1) Short elevated exposures, eg Spillage - goggles and correct respiratory protection should be worn.  
N.B If the vapour/mist concentrations exceed the exposure limit by more than ten times, air supplied apparatus should be used.

(2) For prolonged elevated exposures - Full face air supplied or self contained breathing apparatus should be worn.

## **Contamination**

If contamination occurs, change clothing and discard internally contaminated gloves and footwear. Launder contaminated clothing before reuse.

Observe good personal Hygiene

Eye wash fountains and safety showers should be available for emergency use.

## **Personal Protection - continued**

### References

For detailed advice on personal Protection equipment, refer to the following Australian Standards:

HB 9 (Handbook 9) Manual of Industrial Personal Protection

AS 1337 Eye protectors for Industrial applications

AS 1715 Selection, use and Maintenance of respiratory protective devices

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AS 1716      Respiratory protective Devices

## **Fire Fighting and Flammability**

Combustible liquid  
Will not burn unless preheated  
Heating may cause expansion or decomposition leading to violent rupture of containers  
Combustion may cause toxic fumes of Carbon Monoxide (CO)  
May emit acrid smoke  
Mists containing combustibles that may be explosive  
Other combustion products include carbon dioxide (CO<sub>2</sub>)

## **Fire/Explosion Hazard**

Combustible, Combustion products include oxides of carbon. Keep storage tanks, pipelines, fire exposed surfaces etc cool with water spray. Shut off any leak if safe to do so and remove sources of re-ignition. Use foam, CO<sub>2</sub> or Dry Powder to extinguish fire.

## **Fire incomparability**

Avoid contamination with strong oxidising agents as ignition may result.

## **HAZCHEM**

None

## **Extinguishing Media**

Foam  
Dry Chemical Powder  
Carbon Dioxide  
Water Spray or fog (Large Fires Only)

Refer to AS 1940 - Storage and handling of flammable and combustible liquids and AS 2865 - safe working in a confined space, for more specific information on these subjects.

## **Fire Fighting**

Alert Fire Brigade and advise location and nature of hazard  
Breathing Protection required and protective gloves  
Prevent by any means available, ingress of spillage into drains or water courses  
Use water delivered as a fine spray to control fire and cool surrounding area  
Avoid spraying water onto liquid pools  
Do not approach

## **SAFE HANDLING INFORMATION**

## **Storage and Transport**

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Classified as a Class C2 combustible Liquid for storage and handling purposes. Store in a well ventilated place away from ignition sources, oxidizing agents, foodstuffs and clothing. Keep containers closed when not in use.

Keep all containers securely sealed.

No smoking or ignition sources.

Store in a cool well ventilated area.

Store away from incompatible materials and foodstuffs.

Protect containers from damage and check regularity for leaks.

## **Transport**

No restrictions

## **Spills and Disposal**

### **Spills and Disposal**

Extinguish or remove all sources of ignition and stop leaks if safe to do so. Contain the spill with sand or earth and take up with a Vacuum truck or absorb with absorbent material, sand or earth absorbent in a suitable sealed container and follow state or local authority regulations and guidelines for disposal of the waste. Clean area with detergent and water. Do not allow product to enter drains, sewers or water courses, inform the local authorities if this occurs.

### **Minor spills**

Slippery when spilt

Remove all ignition sources

Clean up all spills immediately

Avoid breathing vapours and contact with skin and eyes

Control personal contact by using protective equipment

Contain and absorb spill using sand, earth or absorbent clay

Wipe up

Place in suitable container and label for waste disposal

### **Major Spills**

Slippery when spilt

Remove all ignition sources

Clear area of all personnel

Minor hazard

Alert Fire Brigade and alert them to exact location and nature of hazard

Control personal contact by using protective equipment

Use whatever means to prevent spill entering water ways and drains

Contain spill using sand, earth or absorbent clay

Collect recoverable product into labelled containers for recycling

Wash area and prevent run off entering waterways or drains

In the event that contamination of waterways or drains has occurred, advise emergency services immediately.

### **Disposal**

Recycle wherever possible, consult Local, State or Federal authorities for advice

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Contact Local Waste or EPA for advice on disposal options  
Recycle all containers through appropriate authorised facilities

## **OTHER INFORMATION**

Long term animal experiments have shown that any health risks are associated with the level of aromatic and polycyclic constituents in the product. These constituents are removed during the manufacturing process to a level at which no health risks are expected as a result of normal handling

## **CONTACT POINT**

**Emergency response 02 43885911**

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**Telephone +61 2 43885911**

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