

# ***Material Safety Data Sheet***

***Complete Fuel System Cleaner***

Official Powerplus Document 2014 Edition

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## Section 01: **Identification of Material and Supplier**

|                                   |   |
|-----------------------------------|---|
| <b>Product Name</b>               | Complete Fuel System Cleaner  |
| <b>Other Names</b>                | Not Applicable  |
| <b>Product Codes/Trade Names</b>  | N/A   |
| <b>Recommended Use</b>            | Fuel additive used as fuel system cleaner.                          |
| <b>Applicable In:</b>             | Australia   |
| <b>Supplier</b>                   | Powerplus   |
| <b>Address</b>                    | 118 Swann Drive, Derrimut Victoria 3030                             |
| <b>Telephone</b>                  | +61 3 93690220  |
| <b>Email Address</b>              | info@acbgroup.com.au  |
| <b>Facsimile</b>                  | +61 3 93690883  |
| <b>Emergency Phone Number</b>     | 000 Fire Brigade and Police (Available in Australia only).          |
| <b>Poisons Information Centre</b> | Poisons Information Centre: 13 11 26 (Available in Australia only). |

This Material Safety Data Sheet (MSDS) is issued by the Supplier in accordance with National standards and guidelines from the Australian Safety and Compensation Council (ASCC, formerly National Occupational Health and Safety Commission - NOHSC). The information in it must not be altered, deleted or added to. The Supplier will not accept any responsibility for any changes made to its MSDS by any other person or organization. The Supplier will issue a new MSDS when there is a change in product specifications and/or ASCC standards, codes, guidelines, or Regulations.

## Section 02: **Hazard Identification**

|                               |   |
|-------------------------------|---|
| <b>Hazards Identification</b> | HAZARDOUS SUBSTANCE.<br>NON-DANGEROUS GOODS.<br>Hazard classification according to the criteria of NOHSC.<br>Non-Dangerous goods classification according to the Australia Dangerous Goods Code.<br>COMBUSTIBLE LIQUID, regulated for storage purposes only |
|-------------------------------|---|

### **Risk Phrases**

|               |   |
|---------------|---|
| <b>R52/53</b> | Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| <b>R40(3)</b> | Limited evidence of carcinogenic effect.  |
| <b>R66</b>    | Repeated exposure may cause skin dryness and cracking.  |
| <b>R67</b>    | Vapours may cause drowsiness and dizziness.   |
| <b>R65</b>    | HARMFUL-May cause lung damage if swallowed.   |

### **Safety Phrases**

|            |   |
|------------|---|
| <b>S13</b> | Keep away from food, drink and animal feeding stuffs. |
|------------|---|



|            |  |
|------------|--|
| <b>S23</b> | Do not breathe gas/fumes/vapour/spray.   |
| <b>S29</b> | Do not empty into drains.  |
| <b>S35</b> | This material and its container must be disposed of in a safe way.                         |
| <b>S36</b> | Wear suitable protective clothing.   |
| <b>S37</b> | Wear suitable gloves.  |
| <b>S40</b> | To clean the floor and all objects contaminated by this material, use water and detergent. |
| <b>S46</b> | If swallowed, seek medical advice immediately and show this container or label.            |
| <b>S51</b> | Use only in well ventilated areas.   |
| <b>S56</b> | Dispose of this material and its container at hazardous or special waste collection point. |
| <b>S57</b> | Use appropriate container to avoid environmental contamination.                            |

#### **Other Hazards**

Cumulative effects may result following exposure\*.  
 Limited evidence of a carcinogenic effect\*. May be harmful to the foetus/ embryo\*. May possibly affect fertility\*.  
 Repeated exposure potentially causes skin dryness and cracking\*.

### **Section 03: Composition/Information on Ingredients**

| <b>Chemical Name</b>                       | <b>Synonyms</b> | <b>Proportion</b> | <b>CAS Number:</b> |
|--|-----------------|-------------------|--------------------|
| Naphtha petroleum heavy, hydrodesulfurized | -               | 30-60             | 64742-82-1         |
| Distillates, petroleum, middle, sweetened  | -               | <20               | 64741-86-2         |
| Solvent naphtha petroleum, heavy aromatic  |                 | <10               | 64742-94-5         |
| Polyether amine                            |                 | 1-10              | Not available      |
| Naphthalene                                |                 | <1                | 91-20-3            |

### **Section 04: First Aid Measures**

**If poisoning occurs, contact a doctor or Poisons Information Centre.**



## **Swallowed**

If swallowed do NOT induce vomiting.

If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

Observe the patient carefully.

Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice.

Avoid giving milk or oils.

Avoid giving alcohol.

## **Eyes**

If this product comes in contact with the eyes:

Wash out immediately with fresh running water.

Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

Seek medical attention without delay; if pain persists or recurs seek medical attention.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

## **Skin**

If skin contact occurs:

Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available).

Seek medical attention in event of irritation.

## **Inhaled**

If fumes or combustion products are inhaled remove from contaminated area.

Lay patient down. Keep warm and rested.

Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.

Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

Transport to hospital, or doctor, without delay.

## **First Aid Facilities: Indication of any immediate medical attention and special treatment needed**

First aid kits, safety showers, eye wash stations.

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:



Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.

Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO<sub>2</sub> 50 mm Hg) should be intubated.

Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.

Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

## Section 05: **Fire Fighting Measures**

### **Flammability**

Combustible.

Slight fire hazard when exposed to heat or flame.

Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO).

May emit acrid smoke.

Mists containing combustible materials may be explosive.

Combustion products include:

carbon dioxide (CO<sub>2</sub>)

other pyrolysis products typical of burning organic material

May emit poisonous fumes.

### **Suitable extinguishing media**

Water spray or fog.

Alcohol stable foam. Dry chemical powder.

Carbon dioxide.

### **Special Hazards arising from the substrate or mixture**

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result



**Special protective precautions and equipment for fire fighters**

Alert Fire Brigade and tell them location and nature of hazard.  
Wear full body protective clothing with breathing apparatus.  
Prevent, by any means available, spillage from entering drains or water course. Use water delivered as a fine spray to control fire and cool adjacent area.  
Avoid spraying water onto liquid pools.  
DO NOT approach containers suspected to be hot.  
Cool fire exposed containers with water spray from a protected location.  
If safe to do so, remove containers from path of fire.

## Section 06: **Accidental Release Measures**

### **Emergency Procedure**

#### **MINOR SPILLS**

Remove all ignition sources.  
Clean up all spills immediately.  
Avoid breathing vapours and contact with skin and eyes.  
Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite.  
Wipe up.  
Place in a suitable, labelled container for waste disposal.

#### **MAJOR SPILLS**

Moderate hazard.  
Clear area of personnel and move upwind.  
Alert Fire Brigade and tell them location and nature of hazard.  
Wear breathing apparatus plus protective gloves.  
Prevent, by any means available, spillage from entering drains or water course. No smoking, naked lights or ignition sources.  
Increase ventilation.  
Stop leak if safe to do so.  
Contain spill with sand, earth or vermiculite.  
Collect recoverable product into labelled containers for recycling. Absorb remaining product with sand, earth or vermiculite.  
Collect solid residues and seal in labelled drums for disposal.  
Wash area and prevent runoff into drains.  
If contamination of drains or waterways occurs, advise emergency services.

## Section 07: **Handling and Storage**

### **Handling**

Containers, even those that have been emptied, may contain explosive vapours.  
Do NOT cut, drill, grind, weld or perform similar operations on or near containers.



DO NOT allow clothing wet with material to stay in contact with skin. Electrostatic discharge may be generated during pumping - this may result in fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge ( $\leq 1$  m/sec until fill pipe submerged to twice its diameter, then  $\leq 7$  m/sec).

Avoid splash filling.

Do NOT use compressed air for filling, discharging or handling operations. Avoid all personal contact, including inhalation.

Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area.

Prevent concentration in hollows and sumps.

DO NOT enter confined spaces until atmosphere has been checked.

DO NOT allow material to contact humans, exposed food or food utensils. Avoid contact with incompatible materials.

When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers.

Always wash hands with soap and water after handling.

Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice.

Observe manufacturer's storage and handling recommendations contained within this MSDS.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Store in original containers.

Keep containers securely sealed.

No smoking, naked lights or ignition sources. Store in a cool, dry, well-ventilated area.

Store away from incompatible materials and foodstuff containers.

Protect containers against physical damage and check regularly for leaks.

Observe manufacturer's storage and handling recommendations contained within this MSDS.

## **Storage**

DO NOT use aluminium or galvanised containers

Metal can or drum

Packaging as recommended by manufacturer.

Check all containers are clearly labelled and free from leaks.

Storage Incompatibility : Avoid Reaction with oxidizing agents.

## **Section 08: Exposure Controls/Personal Protection**



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## Exposure Standards

National Occupational Exposure Standard (NES) Australian Safety & Compensation Council, ASCC (formerly NOHSC)  
Complete Fuel System Cleaner  
Source: Australia Exposure Standards

| <b>Material Name</b>                      | <b>TWA</b>                         | <b>STEL</b>                     |
|---|------------------------------------|---------------------------------|
| Naphtha petroleum, heavy, hydrosulferized | 790 (mg/m <sup>3</sup> )           | N/A                             |
| Distillates, petroleum, middle, sweetened | 5 (mg/m <sup>3</sup> )             | N/A                             |
| Naphthalene                               | 52 (mg/m <sup>3</sup> ) / 10 (ppm) | 79(mg/m <sup>3</sup> ) /15(ppm) |

### Notes

All occupational exposures to atmospheric contaminants should be kept to as low a level as is workable (practicable) and in all cases to below the National Standard. These Exposure Standards are guides to be used in the control of occupational health hazards. These Exposure Standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity. TWA (Time Weighted Average): the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers. STEL (Short Term Exposure Limit): the average airborne concentration over a 15 minute period that should not be exceeded at any time during a normal eight-hour work day.

### Biological Limit Values

N/A

### ENGINEERING CONTROLS Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:  
Process controls which involve changing the way a job activity or process is done to reduce the risk.  
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly.





The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear approved respirator.

Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed 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 contaminant.

| <b>Type of Contaminant</b>  | <b>Air Speed</b>             |
|---|------------------------------|
| 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 conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.)   |
| Direct spray, spray painting in shallow booths, drum filling, conveyer 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:**

| <b>Lower end of the range</b>                          | <b>Upper end of the range</b> |
|--|-------------------------------|
| Room air currents minimal or favourable to capture     | Disturbing room air currents  |
| Contaminants of low toxicity or of nuisance value only | Contaminants of high toxicity |
| Intermittent, low production                           | High production, heavy use    |
| Large hood or large air mass in motion                 | 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.

### **Personal Hygiene Body Protection**

Minimise all forms of skin contact. In the event of risk from splashing wear e.g. Nitrile, PVC, or neoprene rubber apron. Wear safety shoes or boots which are chemical and petroleum distillate resistant.

### **Skin Protection**

Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes). For incidental contact/splash protection Neoprene or PVC gloves may be suitable. Breakthrough times for gloves varies depending on, e.g. chemical resistance, material thickness, frequency and duration of contact. Selection should also take into account other usage requirements, e.g. dexterity, heat resistance, other chemical substances handled. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

### **Eye Protection**

Wear safety glasses or full face shield if splashes are likely to occur.

### **Respiratory Protection**

Care should be taken to keep exposures below applicable occupational exposure limits. If this cannot be achieved, use of a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be considered. Where air-filtering respirators are unsuitable (e.g. where airborne concentrations are high, there is a confined space or a risk of oxygen deficiency) use appropriate positive pressure breathing apparatus.

### **Thermal Protection**

None should be needed under normal circumstances.

### **Smoking & Other Dusts**

Smoking must be prohibited in all areas where this product is used - see safety information on flammability.

## **Section 09: Physical and Chemical Properties**

### **Appearance**

Pale yellow liquid with a solvent odour; does not mix with water.



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|   |  |
|---|--|
| <b>pH, at stated concentration</b>              | Not available  |
| <b>Vapour pressure</b>                          | Not available  |
| <b>Vapour Density</b>                           | Not available  |
| <b>Boiling Point (°C)</b>                       | Not available  |
| <b>Freezing/Melting Point (°C)</b>              | Not available  |
| <b>Solubility</b>                               | Immiscible   |
| <b>Specific Gravity (H2O = 1)</b>               | 0.849  |
| <b>Flash Point</b>                              | 75 °C  |
| <b>Flash Point Method</b>                       | Not available  |
| <b>Flammable (Explosive)</b>                    |  |
| <b>Limit - Upper</b>                            | Not available  |
| <b>Flammable (Explosive)</b>                    |  |
| <b>Limit - Lower</b>                            | Not available  |
| <b>Auto ignition Temperature</b>                | Not available  |
| <b>Evaporation Rate</b>                         | Not available  |
| <b>Volatile Organic Compounds Content (VOC)</b> | (as specified by the Green Building Council of Australia) Not Applicable |
| <b>% Volatiles</b>                              | Not available  |

## Section 10: **Stability and Reactivity**

|                                    |  |
|------------------------------------|--|
| Reactivity                         | See section 7  |
| Chemical Stability                 | Presence of incompatible materials.<br>Product is considered stable.<br>Hazardous polymerisation will not occur.                       |
| Possibility of hazardous reactions | See section 7  |
| Conditions to avoid                | See section 7  |
| Incompatible materials             | Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
| Hazardous decomposition products   | See section 5  |

## Section 11: **Toxicological Information**

Health effects information is based on reported effects in use from overseas and Australian reports.

| <b>Toxicological Data</b>                   | <b>TOXICITY</b>   |
|---|---|
| Complete Fuel system Cleaner                | Dermal (Rabbit) LD50: >2000 mg/kg<br>Oral (Rat) LD50: >2000 mg/kg |
| naphtha petroleum, heavy, hydrodesulfurised | Not Available   |



| <b>Toxicological Data</b>                 | <b>TOXICITY</b>  |
|---|--|
| distillates, petroleum, middle, sweetened | Not Available  |
| solvent naphtha petroleum, heavy aromatic | Dermal (rabbit) LD50: >3160 mg/kg<br>Oral (rat) LD50: 3200 mg/kg |
| naphthalene                               | Oral (child) LDLo: 100 mg/kg                                     |

### **Effects Acute Swallowed**

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result. Signs and symptoms of chemical (aspiration) pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis). Ingestion of petroleum hydrocarbons may produce irritation of the pharynx, oesophagus, stomach and small intestine with oedema and mucosal ulceration resulting; symptoms include a burning sensation in the mouth and throat. Large amounts may produce narcosis with nausea and vomiting, weakness or dizziness, slow and shallow respiration, swelling of the abdomen, unconsciousness and convulsions. Myocardial injury may produce arrhythmias, ventricular fibrillation and electrocardiographic changes. Central nervous system depression may also occur. Light aromatic hydrocarbons produce a warm, sharp, tingling sensation on contact with taste buds and may anaesthetise the tongue. Aspiration into the lungs may produce coughing, gagging and a chemical pneumonitis with pulmonary oedema and haemorrhage.

### **Eyes**

Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result. The aromatic fraction may produce irritation and lachrymation.

Evidence exists, or practical experience predicts, that the material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Eye contact may cause significant inflammation with pain. Corneal injury may occur; permanent impairment of vision may result unless treatment is prompt and adequate.

Repeated or prolonged exposure to irritants may cause inflammation characterised by a temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

## **Skin**

Skin contact with the material may be harmful; systemic effects may result following absorption.

The material may accentuate any pre-existing dermatitis condition. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

The material produces mild skin irritation; evidence exists, or practical experience predicts, that the material either produces mild inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant, but mild, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.

Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

## **Inhaled**

Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

Inhalation hazard is increased at higher temperatures.



High inhaled concentrations of mixed hydrocarbons may produce narcosis characterised by nausea, vomiting and lightheadedness. Inhalation of aerosols may produce severe pulmonary oedema, pneumonitis and pulmonary haemorrhage. Inhalation of petroleum hydrocarbons consisting substantially of low molecular weight species (typically C2-C12) may produce irritation of mucous membranes, incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and anaesthetic stupor. Massive exposures may produce central nervous system depression with sudden collapse and deep coma; fatalities have been recorded. Irritation of the brain and/or apnoeic anoxia may produce convulsions. Although recovery following overexposure is generally complete, cerebral micro-haemorrhage of focal post-inflammatory scarring may produce epileptiform seizures some months after the exposure. Pulmonary episodes may include chemical pneumonitis with oedema and haemorrhage. The lighter hydrocarbons may produce kidney and neurotoxic effects. Pulmonary irritancy increases with carbon chain length for paraffins and olefins. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce anaesthesia and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C5-7 paraffins may also produce polyneuropathy. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue and vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons are cardiac sensitisers and may cause ventricular fibrillations.

Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal. Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination.

### **Effects: Chronic**

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

There is some evidence that human exposure to the material may result in developmental toxicity.



This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

Exposure to the material may cause concerns for human fertility, on the basis that similar materials provide some evidence of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects. Repeated or prolonged exposure to mixed hydrocarbons may produce narcosis with dizziness, weakness, irritability, concentration and/or memory loss, tremor in the fingers and tongue, vertigo, olfactory disorders, constriction of visual field, paraesthesias of the extremities, weight loss and anaemia and degenerative changes in the liver and kidney. Chronic exposure by petroleum workers, to the lighter hydrocarbons, has been associated with visual disturbances, damage to the central nervous system, peripheral neuropathies (including numbness and paraesthesias), psychological and neurophysiological deficits, bone marrow toxicities (including hypoplasia possibly due to benzene) and hepatic and renal involvement. Chronic dermal exposure to petroleum hydrocarbons may result in defatting which produces localised dermatoses. Surface cracking and erosion may also increase susceptibility to infection by microorganisms. One epidemiological study of petroleum refinery workers has reported elevations in standard mortality ratios for skin cancer along with a dose-response relationship indicating an association between routine workplace exposure to petroleum or one of its constituents and skin cancer, particularly melanoma. Other studies have been unable to confirm this finding.

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Studies with some ethylene glycol ethers and their esters indicate reproductive changes, testicular atrophy, infertility and kidney function changes. The metabolic acetic acid derivatives of the glycol ethers (alkoxyacetic acids), not the ether itself, have been found to be the proximal reproductive toxin in animals. The potency of these metabolites decrease significantly as the chain length of the ether increases. Consequently glycol ethers with longer substituents (e.g diethylene glycols, triethylene glycols) have not generally been associated with reproductive effects.



One of the most sensitive indicators of toxic effects observed from many of the glycol ethers is an increase in the erythrocytic osmotic fragility in rats. This appears to be related to the development of haemoglobinuria (blood in the urine) at higher exposure levels or as a result of chronic exposure. Ethylene glycol ethers and acetates are mainly metabolised to alkoxyacetic acids but there is also a minor pathway through ethylene glycol to oxalic acid. The main pathway of ethylene glycol ethers is associated with significant clinical or experimental health effects, but the minor pathway is also interesting because formation of urinary stones depends principally upon urinary concentration of oxalate and calcium.

In one study (1) the tendency to form urinary stones was 2.4 times higher amongst silk-screen printers exposed to ethylene glycol ethers, than among office workers. (1) Laitinen J., et al: Occupational Environmental Medicine 1996, 53 595-600

## Section 12: **Ecological Information**

|                                      |                    |
|--------------------------------------|--------------------|
| <b>Eco-toxicit.</b>                  | No data available. |
| <b>Persistence and Degradability</b> | No data available. |
| <b>Bioaccumulation</b>               | No data available. |
| <b>Mobility</b>                      | No data available. |

## Section 13: **Disposal Considerations**

Containers may still present a chemical hazard/ danger when empty.

Return to supplier for reuse/ recycling if possible. Otherwise: If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:





Reduction  
Reuse  
Recycling  
Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal.

In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

Where in doubt contact the responsible authority.

Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Authority for disposal.

Bury or incinerate residue at an approved site.

Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14: **Transport Information**

|  |   |
|--|---|
| <b>Proper Shipping Name</b>              | Not applicable  |
| <b>UN number</b>                         | Not applicable  |
| <b>DG Class</b>                          | Combustible liquid, C1  |
| <b>Subsidiary Risk 1</b>                 | None Allocated  |
| <b>Packaging Group</b>                   | None allocated  |
| <b>HAZCHEM code</b>                      | Not applicable  |
| <b>Packaging Method</b>                  | None allocated  |
| <b>EPG Number</b>                        | None allocated  |
| <b>IERG Number</b>                       | None Allocated  |
| <b>Marine Pollutant</b>                  | No  |
| <b>Special Precautions for User</b>      | Refer to incompatibilities in section 7 and stability and reactivity information in section 10. |
| <b>ADDITIONAL TRANSPORT REQUIREMENTS</b> | Nil   |

## Section 15: **Regulatory Information**

**Poisons Schedule** NA



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## Section 16: **Other Information**

### **Contact**

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### **AS1020 AS1076**

The Control of undesirable static electricity.  
Code of Practice for selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications) – Parts 1 to 13.

### **AS/NZS 1336 AS/NZS 1715**

Recommended Practices for Occupational Eye Protection  
Selection, Use and Maintenance of Respiratory Protective Devices

### **AS/NZS 1716 AS 1940**

Respiratory Protective Devices

### **AS 2161**

The Storage and Handling of Flammable and Combustible Liquids.

Industrial Safety Gloves and Mittens (excluding electrical and medical gloves)

### **AS2380**

Electrical equipment for explosive atmospheres – Explosion Protection Techniques (Parts 1 to 9).

### **AS3000**

Electrical installations (known as the Australian/New Zealand Wiring Rules).

### **NOHSC:2011(2003)**

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition, April

2003, National Occupational Health and Safety Commission.

### **NOHSC; 2012 (1994)**

National Code of Practice for the Labelling of Workplace Substances, March 1994, Australian Government Publishing Service, Canberra.

### **NES**

National Occupational Exposure Standards for workplace Atmospheric Contaminants (NES)

Australian Safety and Compensation Council, ASCC (Formerly NOHSC) 1995 as amended.

### **ADG Code 6th Edition**

Australian Dangerous Goods Code 6th Edition

### **Authorisation**

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