

**MATERIAL SAFETY DATA SHEET**  
**Hazardous according to criteria of Worksafe Australia**

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**Date of Issue : Jan 2002**

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**1. IDENTIFICATION**

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**General**

Product Name : METHANOL

Other Names : METHANOL METHYL ALCOHOL

UN No. : 1230

Dangerous Goods Class : 3

Subsidiary Risk : 61

Hazchem Code : 2WE

Pack Group : II

EPG : 16

Poisons Schedule : 6

Uses :

Manufacture of formaldehyde, acetic acid and dimethyl terephthalate, chemical synthesis, antifreeze, solvent, denaturant for ethanol, fuel, feedstock for the manufacture of synthetic proteins.

**1.1 Physical Description / Properties**

Appearance : Clear, colourless, very mobile liquid with an alcoholic odour.

Formula : CH<sub>4</sub>O

Boiling Point : 64.7 deg C

Melting Point : -97.7 deg C

Vapour Pressure : 127 mm Hg (1 atmosphere)

Specific Gravity : 0.79 (water = 1)

Flash Point : Open Cup 12

pH : N/A ()

Solubility in water : Misc g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : 6.7

Upper Explosion Limit : 36.5

### 1.2 Other Properties

Miscible with water and most organic solvents. Characteristic pungent odour. Burns with a non-luminous, bluish flame. Volatile component : 100% Autoignition temperature : 470 deg C Relative vapour density : 1.11 Molecular weight : 32.05 Viscosity @ 25 deg C : 0.541 mPa.s Burns with a non-luminous, bluish flame.

### 1.3 Ingredients

Chemical Entity	CAS No.	Proportions (%)
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METHANOL	[ 67-56-1]	100

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## 2. HEALTH HAZARD INFORMATION

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### 2.1 Health Effects - Acute

#### Swallowed

Toxic if swallowed. Ingestion can result in nausea, vomiting, severe abdominal pain, back pain, central nervous system effects including optic nerve damage (hyperemia etc.), convulsions, blindness, loss of consciousness and ultimately proceed to coma and death.

#### Eye

A moderate eye irritant. May cause watering of the eyes, stinging or blurred vision, and sensitivity to light.

#### Skin

Contact with skin will result in defatting and moderate irritation. Can be absorbed through the skin in harmful amounts.

#### Inhaled

Toxic by inhalation. The vapour is irritating to the mucous membranes and respiratory tract. Inhalation of vapour can cause headache, nausea, central nervous system effects, and visual impairment, possibly blindness. Continued exposure can result in health effects as per ingestion.

### 2.2 Health Effects - Chronic

Prolonged, chronic exposure from skin contact, inhalation and swallowing of methanol can result in dermatitis, systemic effects to the liver, heart and possibly kidneys, permanent blindness and central nervous system effects.

### 2.3 First Aid

## **Swallowed**

If less than 15 minutes from a hospital, give one to two glasses of water to drink and transport patient immediately to hospital/medical centre. DO NOT induce vomiting. If medical assistance is not immediately available, carefully induce vomiting, protecting against aspiration of material into the lungs, by placing patient head lower than knees. Use fingers, Ipecac Syrup (APF) or similar emetic. Continue to seek medical assistance.

## **Eye**

Gently rinse the eyes with clean, lukewarm water for at least 15 minutes, holding eyelids open. Have victim remove contact lenses. In all cases of eye contamination it is a sensible precaution to seek medical advice.

## **Skin**

Immediately rinse affected area with mild soap and lukewarm water for 20 minutes. Remove contaminated clothing during rinsing. If irritation or other effects persist, seek medical advice. Separately wash contaminated clothing before reuse.

## **Inhaled**

Remove victim from exposure - avoid becoming a casualty. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. For all but the most minor symptoms arrange for patient to be seen by a doctor as soon as possible - either on site or at the nearest hospital.

## **First Aid Facilities**

Ensure an eye bath & safety shower are available and ready for use.

## **2.5 Advice to Doctor**

Watch for toxic effects which may be delayed, including chemical pneumonia. Contact Poisons Information Centre for antidote treatment with ethyl alcohol. Central nervous system depression, and acidosis from methanol metabolites, including formaldehyde, liver function and optic nerve, and other effects should be treated symptomatically.

## 2.6 Toxicity Data

Oral LD50 = 5628 mg/kg (rat) Inhalation LC50 = 64000 ppm/4hr (rat) Eye (rabbit) moderate = 100 mg/24hr Skin (rabbit) moderate = 20 mg/24hr Methanol has shown a variety of effects in animal and in-vitro toxicity testing, including foetal toxicity, developmental abnormalities in rats, effects on mouse sperm development and mutagenic effects on human white blood cells and strains of bacteria. An incomplete rat inhalation study has shown no evidence of carcinogenicity.

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## 3. PRECAUTIONS FOR USE

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### 3.1 Exposure Standards

Methyl alcohol TWA : 200 ppm (262 mg/m<sup>3</sup>) (Worksafe) STEL : 250 ppm (328 mg/m<sup>3</sup>)  
Absorption through the skin may be a significant source of exposure. TWA is the time-weighted average concentration of the work atmosphere over a normal 8-hour work day and 40-hour work week. Nearly all workers may be repeatedly exposed to this level, day after day, without adverse effect. STEL means a 15 minute exposure which should not be exceeded at any time during a working day. STEL exposures should not be repeated more than four times per day.

### 3.2 Engineering Controls

Use sufficient ventilation to maintain air concentration below the exposure standard. Use with local exhaust ventilation or while wearing appropriate respirator. The performance of the ventilation system should be checked regularly.

### 3.3 Personal Protection

Respiratory protection - where the air concentration approaches the exposure standard the following respiratory protection is recommended : - short elevated exposure: organic filter respirator. If exposures greater than 10 times the TWA use air line respirators. - prolonged elevated exposure - air line respirator. Eye protection - wear safety glasses, goggles or face shield as appropriate. Skin protection - wear neoprene or PVC gloves, PVC splash apron. Good work hygiene practice must be followed when handling this material. That is, always wash hands before eating, drinking, smoking, toilet and work breaks.

### 3.4 Flammability

Highly flammable. Flameproof equipment necessary in the area where this chemical is being used. Nearby equipment must be earthed. Avoid all ignition sources. May form explosive mixtures with air.

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## **SAFE HANDLING INFORMATION**

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### **4.1 Storage / Transport**

Keep out of reach of children. Store in a well ventilated area away from heat and sources of ignition. Store away from incompatible materials such as materials that support combustion (oxidising materials). Store in suitable, labelled containers. Use approved storage cabinets, tanks, rooms and buildings. Inspect periodically for deficiencies such as damage or leaks. Consider leak detection and alarm systems. Have appropriate fire extinguishers available in and near the storage area. Methanol is a Schedule (S6) Poison and must be stored, handled and labelled according to appropriate regulations. Class 3 Flammable liquids shall not be loaded in the same vehicle with Class 1, 2.1, 2.3, 4.2, 5.1, 5.2 or 7 materials.

### **4.2 Packaging / Labelling**

UN No. 1230

Class 3

Sub Risk 61

Hazchem Code 2WE

Pack Group II

EPG No. 16

Shipping Name METHANOL

Hazard FLAMMABLE TOXIC

#### **Risk Phrases**

R11 Highly flammable.

R23/25 Toxic by inhalation and if swallowed.

## **Safety Phrases**

S1/2 Keep locked up and out of the reach of children.

S7 Keep container tightly closed.

S16 Keep away from sources of ignition.

S24 Avoid contact with skin.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible).

## **4.3 Spills and Disposal**

### **Spills**

Do not approach without full protective clothing. Shut off all possible sources of ignition. Remove any naked lights and strong heat sources. Evacuate unprotected personnel from danger area. Move them upwind. Send message to notify emergency services. For large spills, or tank ruptures, consider initial evacuation distance of 200 metres in all directions. If available use water spray to disperse vapour. Isolate leaking containers and stop leak if safe to do so.

Small spill : absorb in sand or other non-combustible material. Scoop up and place in labelled drum. Flush area with water. Large spill : Prevent spilled material from entering drains by banking with sand or earth. Pick up liquid with vacuum truck. Flush area with water.

### **Disposal**

Dispose of in accordance with all Local, State and Federal regulations at an approved waste disposal facility.

## **4.4 FIRE AND EXPLOSION HAZARD**

### **Fire / Explosion**

Highly flammable liquid. On burning will emit noxious fumes including carbon monoxide and carbon dioxide. Heating can cause expansion or decomposition leading to violent rupture of containers. Keep containers cool with water spray. Stable under normal conditions of use. Incompatible with inorganic acids, aldehydes, alkylene oxides, halogens, acid anhydrides, monomers and polymerisable esters.

### Extinguishing Media

Fire-fighters should wear full protective clothing including self-contained breathing apparatus. In case of fire use water fog, foam or dry agent.

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## 5 OTHER INFORMATION

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### Other Information

This substance may be hazardous to the environment. Aquatic toxicity : Arthropoda (Daphnia) : no effect at 10 g/l, 48 hours Fish (trout) : TLm (48 hr) 8000 mg/l Amphibian (frog) : LDLo 59 gm/kg  
Avoid contaminating waterways.

### 5.1 Contact Points

Organisation	Location	Telephone	Ask For
Redox Chemicals Pty Ltd	Wetherill Park NSW	02-97255155	Technical Officer
Poisons Information Centre	Westmead	131129	
		1800-251525	