

Redox Logo with tag line

**MATERIAL SAFETY DATA SHEET****1. IDENTIFICATION****Product Name :** ETHYL METHYL KETONE (METHYL ETHYL KETONE)**Other Names :** 2-BUTANONE MEK**Uses :** Solvent in nitrocellulose coatings and vinyl films, "Glyptal" resins, paint removers, cement and adhesives, organic synthesis, manufacture of smokeless powder, cleaning fluids, printing, catalyst carrier, acrylic coatings.

<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>	<b>Ask For</b>
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	02-97333000	Technical Officer
Poisons Information Centre	Westmead NSW	131126	
		1800-251525	

**2. HAZARD IDENTIFICATION****Hazardous according to criteria of NOHSC**

FLAMMABLE; IRRITANT

**Risk Phrases**

R11 Highly flammable.  
 R36 Irritating to eyes.  
 R66 Repeated exposure may cause skin dryness and cracking.  
 R67 Vapours may cause drowsiness and dizziness.

**Safety Phrases**

S2 Keep out of the reach of children.  
 S9 Keep container in a well ventilated place.  
 S16 Keep away from sources of ignition.

**ERMA New Zealand Approval Code :** HSR001190**HSNO Hazard Classification :** 3.1B 6.1E 6.3B 6.4A 6.9B

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA website [www.ermanz.govt.nz](http://www.ermanz.govt.nz) should be consulted for a full list of triggered controls and cited regulations

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Chemical Entity</b>	<b>CAS No.</b>	<b>Proportions (%)</b>
METHYL ETHYL KETONE	[ 78-93-3]	100

**4. FIRST AID MEASURES****Description of necessary measures according to routes of exposure****Swallowed**

Do NOT induce vomiting. Seek immediate medical attention.

**Eye**

Flush eyes thoroughly with plenty of water. If irritation persists, seek medical attention.

#### **Skin**

Remove contaminated clothing. Wash affected area with soap and water. If irritation persists, seek medical attention.

#### **Inhaled**

Remove victim from exposure to fresh air. If respiratory irritation, dizziness, nausea or unconsciousness occurs, seek immediate medical attention. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

#### **Advice to Doctor**

Treat symptomatically based on individual reactions of patient and judgement of doctor. If ingested, product may be aspirated into the lungs and cause chemical pneumonitis.

#### **Additional Information**

##### **Aggravated medical conditions caused by exposure**

Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system.

## **5. FIRE FIGHTING MEASURES**

#### **Extinguishing Media**

In case of fire, appropriate extinguishing media include water fog, foam, dry chemical or carbon dioxide. Do NOT use straight streams of water.

#### **Hazards from Combustion Products**

Highly flammable liquid. Product can release vapours that readily form flammable mixtures. Vapour accumulation could flash or explode if ignited. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources causing a fire danger. Incomplete combustion will produce carbon dioxide, carbon monoxide, smoke and fumes.

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

Fire fighters should wear a self contained breathing apparatus and full protective clothing along with protective equipment.

#### **Flammability Conditions**

Product is a flammable liquid.

#### **Additional Information**

Hazchem Code : 2[Y]E

## **6. ACCIDENTAL RELEASE MEASURES**

#### **Emergency procedures**

Personnel involved in the clean up should wear full protective clothing. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid walking through spilled product as it may be slippery. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority. Use spark-proof tools and equipment.

#### **Methods and materials for containment and clean up**

Soak up spilled product using absorbent non-combustible material such as sand or soil. Avoid using sawdust or cellulose. When saturated, collect material into suitable, labelled, dry, sealable containers and hold for safe disposal.

## **7. HANDLING AND STORAGE**

#### **Precautions for safe handling**

Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment.

#### **Conditions for safe storage, including any incompatibles**

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Open containers slowly in order to control possible pressure release. Inspect regularly for deficiencies such as damage or leaks. Storage containers/drums must be earthed and bonded. Protect against physical damage. Use non-sparking tools and explosion-proof equipment. Store away from incompatible materials including oxidizing agents, acids and ignition sources. Protect from direct sunlight. Store at ambient temperature. This product has a UN classification of 1193 and a Dangerous Goods Class 3 (flammable).

**Container Type**

Suitable containers include tank cars, barges, drums and tank trucks. Suitable materials include stainless steel, carbon steel, polyester, teflon and butyl rubber. Unsuitable materials include ethylene propylene diene monomer (EPDM), polyacrylonitrile, polypropylene, polystyrene, polyvinyl alcohol, PVC, natural rubber and polyethylene.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****National Exposure Standards**

Methyl Ethyl Ketone (MEK) cas no; 78-93-3 Exposure Standards: TWA : 150ppm (445mg/m3) STEL: 300ppm (890mg/m3) ACGIH TWA: 200ppm ACGIH STEL: 300ppm

**Biological Limit Values**

Product Name Specimen Sampling Time Limit Determinant Source Methyl Ethyl Ketone Urine End of shift 2mg/L MEK ACGIH

**Engineering Controls**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Use explosion proof ventilation equipment.

**Personal Protection**

RESPIRATOR: Wear an NIOSH approved respirator if engineering controls are inadequate. Types of respirators to be considered include type A filter material and half-face filter respirator. EYES: Chemical goggles are recommended. HANDS: Chemical resistant gloves. Consider butyl material. If contact with forearms is likely, wear gauntlet-style gloves. CLOTHING: Wear chemical/oil-resistant clothing and footwear.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	clear, colourless liquid
<b>Formula</b>	CH <sub>3</sub> COCH <sub>2</sub> CH <sub>3</sub>
<b>Odour</b>	characteristic, acetone-like odour
<b>Vapour Pressure</b>	9.3kPa (69.75mmHg) mm Hg (1 atmosphere)
<b>Vapour Density</b>	>1 (101kPa)
<b>Boiling Point</b>	79-81°C deg C
<b>Melting Point</b>	-86°C deg C
<b>Solubility in water</b>	22.6% g/l (25 deg C)
<b>Specific Gravity</b>	0.805 (20°C) (Water = 1)
<b>Flash Point</b>	Closed Cup -4°C
<b>pH</b>	Not Applicable
<b>Flammability Limits (as percentage volume in air)</b>	
<b>Lower Explosion Limit</b>	1.8%
<b>Upper Explosion Limit</b>	11.5%
<b>Ignition Temperature</b>	>450°C
<b>Specific Heat Value</b>	0.549cal/g
<b>Particle Size</b>	Not Applicable
<b>Volatile Organic Compounds (VOC) content</b>	Not Applicable
<b>Evaporation Rate</b>	6
<b>Viscosity</b>	0.52cSt (25°C)
<b>Percent Volatile</b>	No Data
<b>Octanol/Water partition coefficient</b>	Not Applicable
<b>Saturated Vapour Concentration</b>	Not Applicable
<b>Additional Characteristics</b>	Not Applicable
<b>Flame Propagation/Burning Rate of Solid Materials</b>	Not Applicable
<b>Properties of materials that may initiate or contribute to fire intensity</b>	Not Applicable
<b>Potential for Dust Explosion</b>	Product is a liquid.
<b>Reactions that Release Flammable Gases</b>	Flammable liquid and vapour.
<b>Fast or Intensely Burning Characteristics</b>	Not Applicable
<b>Non-flammables that could contribute unusual hazards to a fire</b>	Not Applicable
<b>Release of invisible flammable vapours and gases</b>	No Data
<b>Decomposition Temperature</b>	No Data

**Additional Information**

Coeff. of Thermal Exp: 0.00129 Molecular Weight: 72 Bulk Density: 6.71lb/gal Hygroscopic: Yes Solubility: Soluble in benzene, alcohol and ether.

**10. STABILITY AND REACTIVITY**

**Chemical Stability :** Product is stable under directed conditions of use and storage.

**Conditions to avoid :** Avoid excessive heat, direct sunlight, static discharges and high temperatures.

**Incompatible Materials :** Incompatible with oxidizing agents, acids and sources of ignition.

**Hazardous Decomposition Products :** This product does not decompose at ambient temperatures.

**Hazardous Reactions :** Hazardous polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

### Toxicity Data

No toxicological information available for this product.

### Health Effects - Acute

#### Swallowed

Small amounts of liquid aspirated into the lungs from ingestion of the product or from vomiting may cause chemical pneumonitis or pulmonary edema.

#### Eye

Irritating to the eyes. Will injure eye tissue.

#### Skin

Prolonged or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis.

#### Inhaled

High vapour/aerosol concentrations are irritating to the respiratory tract causing headaches, dizziness, could be anaesthetic and may have other central nervous system effects.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity :** No Data

**Persistence and degradability :** This product is expected to be readily biodegradable. Transformation due to hydrolysis not expected to be significant. Expected to degrade at a moderate rate in water when exposed to sunlight. Transformation due to atmospheric oxidation not expected to be significant.

**Mobility :** Expected to remain in water or migrate through soil.

### Additional information

**Environmental fate (exposure) :** Avoid contaminating drains, sewers and waterways.

**Bioaccumulative potential :** No information available on bioaccumulation for this product.

## 13. DISPOSAL CONSIDERATIONS

### Disposal

Dispose of in accordance with all local, state, and federal regulations.

### Special Precautions for land fill or incineration

This should be done in accordance with the Hazardous Substances (Disposal) Regulations 2001. Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Empty drums should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. Care should in any case be taken to ensure compliance with national and local regulations. This product is NOT for disposal by either landfill or via municipal sewers, drains, natural streams or rivers.

## 14. TRANSPORT INFORMATION

UN No.

Shipping Name 1193

Dangerous Goods Class

Subsidiary Risk ETHYL METHYL KETONE (METHYL ETHYL KETONE)

Pack Group

Precaution for User

Hazchem Code 3

None Allocated

II

FLAMMABLE; IRRITANT

2[Y]E

class 3 Diamond

**15. REGULATORY INFORMATION**

<b>Poisons Schedule</b>	5
<b>EPG</b>	14
<b>AICS Name</b>	2-BUTANONE
<b>NZ Toxic Substance</b>	4
<b>Additional information</b>	No Data

**16. OTHER INFORMATION****Revision Date :** May 2006**Additional information****Legend to abbreviations and acronyms:**

<	less than
>	greater than
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (Registry Number)
CO2	Carbon Dioxide
COD	Chemical Oxygen Demand
ERMA	Environmental Risk Management Authority
HSNO	Hazardous Substance and New Organism
IDLH	Immediately Dangerous to Life and Health
LC50	LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50	LD stands for "Lethal Dose". LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals
Misc	miscible
N/A	Not Applicable
NIOSH	National Institute for Occupational Safety and Health
NOHSC	National Occupational Health and Safety Commission
OECD	Organization for Economic Co-operation and Development
PEL	Permissible Exposure Limit
RCP	Reciprocal Calculation Procedure
STEL	Short Term Exposure Limit

TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations (number)
cm <sup>2</sup>	square centimetres
deg C ( °C )	degrees Celsius
g	gram
g/cm <sup>3</sup>	grams per cubic centimetre
g/l	grams per litre
immiscible	liquids are insoluble in each other
kg	kilogram
kg/m <sup>3</sup>	kilograms per cubic metre
ltr	Litre
m <sup>3</sup>	cubic metre
mbar	millibar
mg	milligram
mg/24H	milligrams per 24 hours
mg/kg	milligrams per kilogram
mg/m <sup>3</sup>	milligrams per cubic metre
miscible	liquids form one homogeneous liquid phase regardless of the amount of either component present
mm	millimetre
ppb	parts per billion
ppm	parts per million
ppm/2h	parts per million per 2 hours
ppm/6h	parts per million per 6 hours
tne	tonne
ug/24H	micrograms per 24 hours
wt	weight

**Literature references:**

No Data

**Sources for data:**

No Data



Australia New Zealand Sydney Office Adelaide Auckland Swettenham Road 2 telephone: +61 (0)2 97333000 Brisbane Christchurch NSW +61 (0)2 2566 97333111 Melbourne Hawkes Bay Australia [www.redox.com](http://www.redox.com) Perth [sydney@redox.com](mailto:sydney@redox.com) Sydney

**This MSDS summarises Redox Pty Ltd best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Redox Pty Ltd expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance. Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.**

© copyright 2006 Redox Pty Ltd