

# Material Safety Data Sheet

## Methyl Ethyl Ketone

### Section 1 - Chemical Product

Methyl Ethyl Ketone

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
78-93-3	METHYL ETHYL KETONE	100%

### Section 3 - Hazards Identification

**POTENTIAL PHYSICAL / CHEMICAL EFFECTS Flammable.** Material can release vapors that readily form flammable mixtures Vapor accumulation could flash and/or explode if ignited.

**POTENTIAL HEALTH EFFECTS** Irritating to eyes. If swallowed, may be aspirated and cause lung damage. May cause central nervous system depression.

### Section 4 - First Aid Measures

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

**EYE CONTACT** Flush thoroughly with water for at least 15 minutes. Get medical assistance.

**INGESTION** Seek immediate medical attention. Do not induce vomiting.

**NOTE TO PHYSICIAN** If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

### Section 5 - Fire Fighting Measures

**EXTINGUISHING MEDIA**

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames. Inappropriate Extinguishing Media: Straight Streams of Water

## **FIRE FIGHTING**

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel. Unusual Fire Hazards: Highly flammable. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger. Hazardous material, Firefighters should consider protective equipment indicated in Section 8. Hazardous Combustion Products: Smoke, Fume, Incomplete combustion products, Oxides of carbon

## **FLAMMABILITY PROPERTIES**

Flash Point [Method] : -4C (25F) [ ASTM D-56]

Flammable Limits (Approximate volume % in air): LEL: 1.8 UEL: 11.5

Autoignition Temperature : >450°C (842°F)

## **Section 6 - Accidental Release Measures**

**NOTIFICATION PROCEDURES** In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

**PROTECTIVE MEASURES** Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for firefighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

**SPILL MANAGEMENT** **Land Spill:** Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. **Large Spills:** Use clean non-sparking tools to collect absorbed material. **Large Spills:** Water spray may reduce vapor; but may not prevent ignition in closed spaces. Recover by pumping or with suitable absorbent. **Water Spill:** Stop leak if you can do it without risk. Eliminate sources of ignition. Warn other shipping. Seek the advice of a specialist before using dispersants. Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

**ENVIRONMENTAL PRECAUTIONS** Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## Section 7 - Handling and Storage

**HANDLING Avoid contact with skin.** Avoid contact with eyes. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapors may be evolved from heated or agitated material. Use only with adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated. Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Prevent small spills and leakage to avoid slip hazard

Loading/Unloading Temperature: [Ambient]

Transport Temperature: [Ambient]

Suitable Containers/Packing : Tank Trucks; Drums; Barges; Tank Cars

Suitable Materials and Coatings (Chemical Compatibility): Carbon Steel; Stainless Steel; Polyester; Teflon; Butyl Rubber

Unsuitable Materials and Coatings : Ethylene-propylene-diene monomer (EPDM); Polyacrylonitrile; Polypropylene; Polystyrene; Polyvinyl Alcohol; PVC; Polyethylene; Natural Rubber

## Section 8 - Exposure Controls, Personal Protection

### EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

METHYL ETHYL KETONE	TWA	590 mg/m <sup>3</sup>	200 ppm
METHYL ETHYL KETONE	STEL	300 ppm	
METHYL ETHYL KETONE	TWA	200 ppm	

**ENGINEERING CONTROLS** The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider: Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage. Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator : For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded. Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will

differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include: If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

**Eye Protection:** Chemical goggles are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include: If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

**ENVIRONMENTAL CONTROLS :** See Sections 6, 7, 12, 13.

## Section 9 - Physical and Chemical Properties

### GENERAL INFORMATION

Physical State : Liquid

Form : Clear

Color : Colorless

Odor : Characteristic

Odor Threshold : N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 20 C) : 0.805

Flash Point [Method] : -4C (25F) [ ASTM D-56]

Flammable Limits (Approximate volume % in air) : LEL: 1.8 UEL: 11.5

Autoignition Temperature : >450°C (842°F)

Boiling Point / Range : 79C (173F) - 81C (178F)

Vapor Density (Air = 1) : > 1 at 101 kPa

Vapor Pressure : 9.3 kPa (69.75 mm Hg) at 20 C | 22.3 kPa (167.25mm Hg) at 38C | 43.6 kPa (327 mm Hg) at 55C

Evaporation Rate (n-butyl acetate = 1) : 6 pH : N/D

Log Pow (n-Octanol/Water Partition Coefficient) : N/D

Solubility in Water : Appreciable

Viscosity : [N/D at 40 °C] | 0.52 cSt (0.52 mm<sup>2</sup>/sec) at 25C

Oxidizing Properties : See Hazards Identification section.

#### **OTHER INFORMATION**

Freezing Point : -86°C (-123°F)

Melting Point : N/D

Molecular Weight : 72

Hygroscopic : Yes

Coefficient of Thermal Expansion : 0.00129

Decomposition Temperature : N/D

### **Section 10 - Stability and Reactivity**

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Avoid heat, sparks, open flames and other ignition sources.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### **Section 11 - Toxicological Information**

**Toxicity:** Minimally Toxic. Based on test data for the material.

**Irritation:** May be irritating to the respiratory tract. The effects are reversible. Based on test data for the material.

#### **CHRONIC/OTHER EFFECTS**

For the product itself: Vapor concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema. METHYL ETHYL KETONE (MEK): 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

### **Section 12 - Ecological Information**

#### **ECOTOXICITY:**

Material -- Not expected to be harmful to aquatic organisms

**MOBILITY:**

Material -- Expected to remain in water or migrate through soil

**PERSISTENCE AND DEGRADABILITY:**

Biodegradation:

Material -- Expected to be readily biodegradable.

Hydrolysis:

Material -- Transformation due to hydrolysis not expected to be significant.

Photolysis:

Material -- Expected to degrade at a moderate rate in water when exposed to sunlight.

Atmospheric

Oxidation: Material -- Transformation due to atmospheric oxidation not expected to be significant

**OTHER ECOLOGICAL INFORMATION**

VOC (EPA Method 24): 6.718 lbs/gal

## Section 13 - Disposal Considerations

**DISPOSAL RECOMMENDATIONS** 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.

**REGULATORY DISPOSAL INFORMATION** RCRA Information: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP). Potential RCRA characteristics: IGNITABILITY. TCLP (METHYL ETHYL KETONE). Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

## Section 14 - Transport Information

**LAND (DOT)**

Proper Shipping Name : ETHYL METHYL KETONE

Hazard Class & Division : 3

ID Number : 1193

Packing Group : II

Product RQ : 5000 LBS - METHYL ETHYL KETONE

ERG Number : 127

Label(s) : 3

Transport Document Name : UN1193, ETHYL METHYL KETONE, 3, PG

**LAND (TDG)**

Proper Shipping Name : ETHYL METHYL KETONE

Hazard Class & Division : 3

UN Number : 1193

Packing Group : II

**SEA (IMDG)**

Proper Shipping Name : ETHYL METHYL KETONE

Hazard Class & Division : 3

EMS Number : F-E, S-D

UN Number : 1193

Packing Group : II

Label(s) : 3

Transport Document Name : UN1193, ETHYL METHYL KETONE (Methyl Ethyl Ketone), 3, PG II, (-4°C c.c.)

**AIR (IATA)**

Proper Shipping Name : ETHYL METHYL KETONE

Hazard Class & Division : 3

UN Number : 1193

Packing Group : II

Label(s) / Mark(s) : 3

Transport Document Name : UN1193, ETHYL METHYL KETONE, 3, PG

## Section 15 - Regulatory Information

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: AICS, IECSC, DSL, EINECS, ENCS, KECI, PICCS, TSCA EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Fire. Immediate Health.