



MATERIAL SAFETY DATA SHEET  
Methyl ethyl ketone

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Methyl ethyl ketone

**Catalog Numbers:** E/1450/08, E/1450/15, E/1450/17, E/1450/21, E/1450/25, E/1450/27, E/1450/MC15, E/1450/PB17, E/1455/08, E/1455/15, E/1455/17, E/1455/25, E/1455/27, E/1455/PB15, E/1455/PB17

**Synonyms:** 2-Butanone; Ethyl methyl ketone; MEK; Methyl ethyl ketone.

**Company Identification:** Fisher Scientific UK  
Bishop Meadow Road, Loughborough  
Leics. LE11 5RG

**For information in Europe, call:** (01509) 231166

**Emergency Number, Europe:** 01509 231166

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	%	EINECS#
78-93-3	Methyl ethyl ketone	>99	201-159-0

**Hazard Symbols:** XI F



**Risk Phrases:** 11 36 66 67

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

*Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.*

#### Potential Health Effects

**Eye:** Causes eye irritation. Vapors cause eye irritation.

**Skin:** May be absorbed through the skin in harmful amounts. Repeated or prolonged exposure may cause drying and cracking of the skin.

**Ingestion:** May cause irritation of the digestive tract. Possible aspiration hazard. May cause central nervous system depression.

**Inhalation:** Causes respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness. May cause central nervous system effects such as nausea and headache.

**Chronic:** Chronic inhalation may cause effects similar to those of acute inhalation. Prolonged or repeated skin contact may cause defatting and dermatitis. Animal studies have reported that fetal effects/abnormalities may occur when maternal toxicity is seen. Chronic overexposure to vapors may cause lung damage.

### Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

- Skin:** In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
- Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:**

### Section 5 - Fire Fighting Measures

- General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
- Extinguishing Media:** In case of fire, use carbon dioxide, dry chemical powder or appropriate foam. Water may be ineffective because it will not cool material below its flash point.

### Section 6 - Accidental Release Measures

- General Information:** Use proper personal protective equipment as indicated in Section 8.
- Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

### Section 7 - Handling and Storage

- Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Avoid breathing vapor.
- Storage:** Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design.

**Exposure Limits**

CAS# 78-93-3:

United Kingdom, WEL - TWA: 200 ppm TWA; 600 mg/m<sup>3</sup> TWA United Kingdom, WEL - STEL: 300 ppm STEL; 899 mg/m<sup>3</sup> STEL  
United States OSHA: 200 ppm TWA; 590 mg/m<sup>3</sup> TWA  
Belgium - TWA: 200 ppm VLE; 600 mg/m<sup>3</sup> VLE Belgium - STEL: 300 ppm VLE; 900 mg/m<sup>3</sup> VLE  
France - VME: 200 ppm VME; 600 mg/m<sup>3</sup> VME France - VLE: 300 ppm VLE; 900 mg/m<sup>3</sup> VLE  
Germany: 200 ppm TWA (exposure factor 1); 600 mg/m<sup>3</sup> TWA (exposure factor 1)  
Germany: skin notation

Japan: 200 ppm OEL; 590 mg/m<sup>3</sup> OEL  
Malaysia: 200 ppm TWA; 590 mg/m<sup>3</sup> TWA  
Netherlands: 300 ppm STEL; 900 mg/m<sup>3</sup> STEL Netherlands: 200 ppm MAC; 590 mg/m<sup>3</sup> MAC  
Russia: 200 mg/m<sup>3</sup> TWA (vapor) Russia: 400 mg/m<sup>3</sup> STEL (vapor)  
Spain: 200 ppm VLA-ED; 600 mg/m<sup>3</sup> VLA-ED Spain: 300 ppm VLA-EC; 900 mg/m<sup>3</sup> VLA-EC

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Color:** colorless

**Odor:** sweetish odor - acetone-like

**pH:** Not available

**Vapor Pressure:** 77.5 mm Hg @ 20 deg C

**Viscosity:** 0.41 cps @ 20 deg C

**Boiling Point:** 80 deg C @ 760 mmHg ( 176.00°F)

**Freezing/Melting Point:** -87 deg C ( -124.60°F)

**Autoignition Temperature:** 404 deg C ( 759.20 deg F)

**Flash Point:** -7 deg C ( 19.40 deg F)

**Explosion Limits: Lower:** 1.4 vol%@93°C

**Explosion Limits: Upper:** 11.4 vol%@93°C

**Decomposition Temperature:** Not available

**Solubility in water:** Soluble

**Specific Gravity/Density:** 0.8050 g/ml

**Molecular Formula:** C<sub>4</sub>H<sub>8</sub>O

**Molecular Weight:** 72.11

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions. Becomes yellow over time.

**Conditions to Avoid:** Ignition sources, excess heat, confined spaces.

**Incompatibilities with Other Materials** Strong oxidizing agents, strong acids, 2-propanol.

**Hazardous Decomposition Products** Carbon monoxide, carbon dioxide, peroxides.

**Hazardous Polymerization** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:** CAS# 78-93-3: EL6475000

**LD50/LC50:** RTECS:  
**CAS# 78-93-3:** Draize test, rabbit, eye: 80 mg;  
Draize test, rabbit, skin: 500 mg/24H Moderate;

Draize test, rabbit, skin: 402 mg/24H Mild;  
Inhalation, mouse: LC50 = 32 gm/m<sup>3</sup>/4H;  
Inhalation, rat: LC50 = 23500 mg/m<sup>3</sup>/8H;  
Oral, mouse: LD50 = 3000 mg/kg;  
Oral, rat: LD50 = 2737 mg/kg;  
Skin, rabbit: LD50 = 6480 mg/kg;

**Carcinogenicity:** Methyl ethyl ketone - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

**Other:** Exposure may enhance the toxicity of other materials.

### Section 12 - Ecological Information

**Ecotoxicity:** Fish: Fathead Minnow: LC50 = 3220 mg/L; 96 Hr; Unspecified  
Fish: Bluegill/Sunfish: LC50 = 1690 mg/L; 96 Hr; Unspecified  
Bacteria: Phytobacterium phosphoreum: EC50 = 51.9 mg/L; 25 min; Microtox test  
Bacteria: Phytobacterium phosphoreum: EC50 = 3373 mg/L; 30 min; Microtox test

### Section 13 - Disposal Considerations

Products considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local authority or advice. Empty containers must be decontaminated before returning for recycling.

### Section 14 - Transport Information

	<b>IATA</b>	<b>IMO</b>	<b>RID/ADR</b>
<b>Shipping Name:</b>	ETHYL METHYL KETONE	ETHYL METHYL KETONE	ETHYL METHYL KETONE
<b>Hazard Class:</b>	3	3	3
<b>UN Number:</b>	1193	1193	1193
<b>Packing Group:</b>	II	II	II

USA RQ: CAS# 78-93-3: 5000 lb final RQ; 2270 kg final RQ

### Section 15 - Regulatory Information

#### European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI F

Risk Phrases:

R 11 Highly flammable.

R 36 Irritating to eyes.

R 66 Repeated exposure may cause skin dryness or cracking.

R 67 Vapours may cause drowsiness and dizziness.

Safety Phrases:

S 9 Keep container in a well-ventilated place.

S 16 Keep away from sources of ignition - No smoking.

WGK (Water Danger/Protection)

CAS# 78-93-3: 1

Canada

CAS# 78-93-3 is listed on Canada's DSL List

#### US Federal

TSCA

CAS# 78-93-3 is listed on the TSCA Inventory.

### Section 16 - Other Information

**MSDS Creation Date:** 7/21/1999

**Revision #8 Date** 6/06/2006

**Revisions were made in Sections:** 9

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