

# Material Safety Data Sheet

## 4-Methyl-2-pentanone

ACC# 96261

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** 4-Methyl-2-pentanone**Catalog Numbers:** AC127390000, AC127390025, AC127390200, AC222170000, AC222170025, AC222175000, AC255660000, AC255660010, AC255665000, AC327920000, AC327920010, AC327920025, AC423960000, AC423960040, AC423960200, AC423965000, 12739-0010, 42396-0010**Synonyms:** 4-Methylpentan-2-one; Isobutyl methyl ketone; Isopropylacetone; Methyl isobutyl ketone; MIBK.**Company Identification:**Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-10-1	4-Methyl-2-pentanone	99.5+	203-550-1

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: APHA: 15 max liquid. Flash Point: 14 deg C.

**Danger!** Flammable liquid and vapor. May cause liver and spleen damage. Harmful if inhaled. Causes eye, skin, and respiratory tract irritation. Repeated exposure may cause skin dryness or cracking. May form explosive peroxides. May cause central nervous system effects.**Target Organs:** Blood, central nervous system, liver, spleen, respiratory system, eyes, skin.**Potential Health Effects****Eye:** Causes eye irritation.**Skin:** Causes skin irritation. May be harmful if absorbed through the skin. Repeated or prolonged exposure may cause drying and cracking of the skin.**Ingestion:** May cause irritation of the digestive tract. May cause liver damage. May be harmful if swallowed. May cause spleen damage. May cause blood abnormalities.**Inhalation:** Harmful if inhaled. Causes respiratory tract irritation. May cause liver damage. May cause

central nervous system effects.

**Chronic:** Adverse reproductive effects have been reported in animals. May cause kidney damage.

## Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** Do not induce vomiting. Get medical aid.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Notes to Physician:** Treat symptomatically and supportively.

## 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. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor. May form explosive peroxides.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**Flash Point:** 14 deg C ( 57.20 deg F)

**Autoignition Temperature:** 460 deg C ( 860.00 deg F)

**Explosion Limits, Lower:** 1.4 Vol %

**Upper:** 7.5 Vol %

**NFPA Rating:** (estimated) Health: 2; Flammability: 3; Instability: 2

## 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. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

## Section 7 - Handling and Storage

**Handling:** Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. Keep away from heat, sparks and flame. Do not ingest or inhale. Container should be opened by a technically qualified person. Use only in a chemical fume hood. If peroxide formation is suspected, do not open or move container.

**Storage:** Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources. May form explosive peroxides on prolonged storage.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
4-Methyl-2-pentanone	50 ppm TWA; 75 ppm STEL	50 ppm TWA; 205 mg/m <sup>3</sup> TWA 500 ppm IDLH	100 ppm TWA; 410 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** 4-Methyl-2-pentanone: 50 ppm TWA; 205 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**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

**Appearance:** clear, colorless - APHA: 15 max

**Odor:** Sweet, camphor-like.

**pH:** Not available.

**Vapor Pressure:** 21.5 mbar @ 20 deg C

**Vapor Density:** 3.45 (air=1)

**Evaporation Rate:** 1.6 (butyl acetate=1)

**Viscosity:** Not available.

**Boiling Point:** 117.4 deg C @ 760 mm Hg

**Freezing/Melting Point:** -84 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 0.800

**Molecular Formula:** C<sub>6</sub>H<sub>12</sub>O

**Molecular Weight:** 100.16

## Section 10 - Stability and Reactivity

**Chemical Stability:** May form explosive peroxides. Air sensitive.

**Conditions to Avoid:** Incompatible materials, ignition sources, exposure to air, excess heat.

**Incompatibilities with Other Materials:** Strong oxidizing agents, reducing agents, strong bases, potassium tert-butoxide.

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

**Hazardous Polymerization:** Has not been reported

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 108-10-1: SA9275000

**LD50/LC50:**

CAS# 108-10-1:

- Draize test, rabbit, eye: 40 mg Severe;
- Draize test, rabbit, eye: 100 uL/24H Moderate;
- Draize test, rabbit, skin: 500 mg/24H Mild;
- Inhalation, mouse: LC50 = 23300 mg/m<sup>3</sup>;
- Inhalation, mouse: LC50 = 23300 mg/m<sup>3</sup>;
- Inhalation, rat: LC50 = 100 gm/m<sup>3</sup>;
- Oral, mouse: LD50 = 1900 mg/kg;
- Oral, mouse: LD50 = 2850 mg/kg;
- Oral, rat: LD50 = 2080 mg/kg;
- Oral, rat: LD50 = 4600 mg/kg;

**Carcinogenicity:**

CAS# 108-10-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** Teratogenic effects have occurred in experimental animals.

**Reproductive Effects:** Adverse reproductive effects have occurred in experimental animals.

**Mutagenicity:** No information found

**Neurotoxicity:** No information found

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Fathead Minnow: LC50 = 505 mg/L; 96 Hr.; Flow through; 25 degrees C, pH 7.5 Fish: Goldfish: LC50 = 460 mg/L; 24 Hr.; Unspecified Water flea Daphnia: EC50 = 4280.0 mg/L; 24 Hr.; Unspecified Algae: EC50 = 400 mg/L; 96 Hr.; Unspecified Bacteria: Phytobacterium phosphoreum: EC50 = 79.6 mg/L; 5 minutes; Microtox test No data available.

**Environmental:** In soil, substance will undergo direct photolysis, volatilization, or aerobic biodegradation. Substance is highly mobile and may also leach to groundwater. In water, substance will undergo direct photolysis and volatilization. Bioaccumulation is not highly predicted. In air, substance will react with hydroxyl radicals or undergo direct photolysis.

**Physical:** No information available.

**Other:** Do not empty into drains.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:**

CAS# 108-10-1: waste number U161 (Ignitable waste).

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	METHYL ISOBUTYL KETONE	METHYL ISOBUTYL KETONE
<b>Hazard Class:</b>	3	3
<b>UN Number:</b>	UN1245	UN1245
<b>Packing Group:</b>	II	II

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 108-10-1 is listed on the TSCA inventory.

#### Health & Safety Reporting List

CAS# 108-10-1: Effective 10/4/82, Sunset 10/4/92

#### Chemical Test Rules

CAS# 108-10-1: 40 CFR 799.5000

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 108-10-1: 5000 lb final RQ; 2270 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 108-10-1: immediate, delayed, fire, reactive.

#### Section 313

This material contains 4-Methyl-2-pentanone (CAS# 108-10-1, 99.5+%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

#### Clean Air Act:

CAS# 108-10-1 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 108-10-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations****European Labeling in Accordance with EC Directives****Hazard Symbols:**

XN F

**Risk Phrases:**

R 11 Highly flammable.

R 36/37 Irritating to eyes and respiratory system.

R 20 Harmful by inhalation.

R 66 Repeated exposure may cause skin dryness or cracking.

**Safety Phrases:**

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

S 29 Do not empty into drains.

S 9 Keep container in a well-ventilated place.

**WGK (Water Danger/Protection)**

CAS# 108-10-1: 1

**Canada - DSL/NDSL**

CAS# 108-10-1 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 108-10-1 is listed on the Canadian Ingredient Disclosure List.

<b>Section 16 - Additional Information</b>
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**MSDS Creation Date:** 5/19/1999

**Revision #9 Date:** 6/05/2008

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