

MSDS**Material Safety Data Sheet**24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300National Response in Canada
CANUTEC: 613-996-6666Outside U.S. and Canada
Chemtrec: 703-527-3887From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

METHYL ISOBUTYL KETONE

MSDS Number: M3588 --- Effective Date: 01/03/01

1. Product Identification

Synonyms: 2-Pentanone,4-methyl-; Hexone; MIBK; Isopropylacetone**CAS No.:** 108-10-1**Molecular Weight:** 100.16**Chemical Formula:** CH₃COCH₂CH(CH₃)₂**Product Codes:**

J.T. Baker: 4855, 5384, 5822, 9212, 9320, 9322

Mallinckrodt: 5923, 6247, 6264

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Methyl Isobutyl Ketone	108-10-1	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

DANGER! HARMFUL OR FATAL IF SWALLOWED. FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE PEROXIDES IN AIR. HARMFUL IF INHALED. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B
EXTINGUISHER

Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:

Causes irritation to the nose and throat. Concentrations above the TLV may cause headache, dizziness, nausea, shortness of breath, and vomiting. Higher concentrations may cause central nervous system depression and unconsciousness.

Ingestion:

May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:

Vapors can irritate the eyes. Splashes cause severe pain and irritation.

Chronic Exposure:

Prolonged skin contact may defat the skin and produce dermatitis. Based on animal studies, chronic exposure may affect liver and kidneys.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, eye problems, impaired respiratory function or central nervous system conditions may be more susceptible to the effects of this substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person.

Call a physician immediately.

Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

5. Fire Fighting Measures

Fire:

Flash point: 14C (57F) CC

Autoignition temperature: 448C (838F)

Flammable limits in air % by volume:

lcl: 1.2; uel: 8.0

Flammable Liquid

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Sensitivity to mechanical impact: Yes, if peroxides are formed. Sensitive to static discharge.

Fire Extinguishing Media:

Dry chemical, foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker SOLUSORB(R) solvent adsorbent is recommended for spills of this product.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Before using bulk quantities of this material, test for presence of explosive peroxides. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

100 ppm (TWA)

-ACGIH Threshold Limit Value (TLV):

50 ppm (TWA), 75 ppm (STEL)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. 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. Please refer to the ACGIH

document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Polyvinyl alcohol (PVA) is a recommended material for personal protective equipment.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Clear, colorless liquid.

Odor:

Slight camphor odor

Solubility:

Moderately soluble in water (1-10%).

Specific Gravity:

0.80 @ 20C

pH:

No information found.

% Volatiles by volume @ 21C (70F):

100

Boiling Point:

117C (243F)

Melting Point:

-85C (-121F)

Vapor Density (Air=1):

3.5

Vapor Pressure (mm Hg):

16 @ 20C (68F)

Evaporation Rate (BuAc=1):

1.6

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. May form explosive peroxides in air.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Aldehydes, Nitric Acid, Perchloric Acid, Strong Oxidizers. Violent reaction with Potassium-tert-butoxide.

Conditions to Avoid:

Heat, flame, ignition sources, air, incompatibles

11. Toxicological Information

Oral rat LD50: 2080 mg/kg; Skin rabbit > 20 mL/kg; irritation eye rabbit, Standard Draize, 40 mg severe; investigated as a reproductive effector.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Methyl Isobutyl Ketone (108-10-1)	No	No	None

12. Ecological Information

Environmental Fate:

When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil, this material may evaporate to a moderate extent. When released into water, this material may evaporate to a moderate extent. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Environmental Toxicity:

This material is not expected to be toxic to terrestrial life. The LC50/96-hour values for fish are over 100 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: METHYL ISOBUTYL KETONE

Hazard Class: 3

UN/NA: UN1245

Packing Group: II

Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: METHYL ISOBUTYL KETONE

Hazard Class: 3.2

UN/NA: UN1245

Packing Group: II

15. Regulatory Information

```

-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
-----
Methyl Isobutyl Ketone (108-10-1)           Yes  Yes  Yes    Yes

```

```

-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     --Canada--
Korea  DSL  NDSL  Phil.
-----
Methyl Isobutyl Ketone (108-10-1)           Yes  Yes  No     Yes

```

```

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ      TPQ      List  Chemical Catg.
-----
Methyl Isobutyl Ketone (108-10-1)           No   No     Yes    No

```

```

-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     -RCRA-      -TSCA-
CERCLA      261.33      8(d)
-----
Methyl Isobutyl Ketone (108-10-1)           5000      U161      No

```

Chemical Weapons Convention: No TSCA 12(b): Yes CDTA: Yes
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: Yes (Pure / Liquid)

Australian Hazchem Code: 3[Y]E

Poison Schedule: S5

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 3 Reactivity: 1

Label Hazard Warning:

DANGER! HARMFUL OR FATAL IF SWALLOWED. FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE PEROXIDES IN AIR. HARMFUL IF INHALED. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Label Precautions:

Keep away from heat, sparks and flame.

Avoid contact with eyes, skin and clothing.

Avoid breathing vapor.

Keep container tightly closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:

Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 5, 9, 16.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Prepared by: Strategic Services Division

Phone Number: (314) 539-1600 (U.S.A.)