Material Safety Data Sheet
Methyl Isobutyl Ketone

ACC# 14550

Section 1 - Chemical Product and Company Identification

MSDS Name: Methyl Isobutyl Ketone
Catalog Numbers: M213-1, M213-20, M213-200, M213-4, NC9652550, XX213200LI
Synonyms: Isobutyl methyl ketone; Methyl isobutyl ketone; Hexone; Isopropylacetone; MIBK; 4-Methyl-2-pentanone.
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	Methyl isobutyl ketone	>98.5	203-550-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 14 deg C.
Warning! Flammable liquid and vapor. Causes eye and respiratory tract irritation. Prolonged or repeated contact may dry the skin and cause irritation. May cause central nervous system depression. This material has been reported to be susceptible to autoxidation and therefore should be classified as peroxidizable. May form explosive peroxides. May cause liver damage.
Target Organs: Central nervous system, liver, respiratory system, eyes, skin.

Potential Health Effects
Eye: Contact produces irritation, tearing, and burning pain. Vapors cause eye irritation.
Skin: Prolonged and/or repeated contact may cause irritation and/or dermatitis. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts.
Ingestion: May cause effects similar to those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.
Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. Exposure produces central nervous system depression. May cause liver abnormalities.
Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis. This material has caused kidney effects in male rats which are not considered relevant to humans.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t 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: 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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. 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: Water may be ineffective. In case of fire, use carbon dioxide, dry chemical powder or appropriate foam.
Flash Point: 14 deg C (57.20 deg F)
Autoignition Temperature: 448 deg C (838.40 deg F)
Explosion Limits, Lower:1.2% @ 93°C
Upper: 8.0% @ 93°C
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

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. Remove all sources of ignition. 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. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor or mist.
Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. 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.

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.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methyl isobutyl ketone	50 ppm TWA; 75 ppm STEL	50 ppm TWA; 205 mg/m3 TWA 500 ppm IDLH	100 ppm TWA; 410 mg/m3 TWA

OSHA Vacated PELs: Methyl isobutyl ketone: 50 ppm TWA; 205 mg/m3 TWA
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
Appearance: clear, colorless
Odor: Sweet, camphor-like.
pH: Not available.
Vapor Pressure: 19.9 mm Hg @ 25 deg C
Vapor Density: 3.45 (air=1)
Evaporation Rate:1.6 (butyl acetate=1)
Viscosity: 0.61 cps @ 20 deg C
Boiling Point: 117 deg C @ 760 mmHg
Freezing/Melting Point:-84 deg C
Decomposition Temperature: Not available.
Solubility: Moderately Soluble.
Specific Gravity/Density:0.80 g/cm3
Molecular Formula:C6H12O
Molecular Weight:100.16

Section 10 - Stability and Reactivity

Chemical Stability: Under normal storage conditions, peroxidizable compounds can form and accumulate peroxides which may explode when subjected to heat or shock. This material is most hazardous when peroxide levels are concentrated by distillation or evaporation.
Conditions to Avoid: Ignition sources, excess heat, confined spaces.
Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, strong bases.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

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/m3;
Inhalation, mouse: LC50 = 23300 mg/m3;

Inhalation, rat: LC50 = 100 gm/m3;
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 data available.
Teratogenicity: One animal study showed that MIBK was not teratogenic, embryotoxic or fetotoxic at exposures which did not cause maternal toxicity.
Reproductive Effects: One unverifiable animal study showed changes in the testis in mice exposed dermally to MIBK for four months.
Mutagenicity: Most mutagenicity tests have produced negative results.
Neurotoxicity: MIBK was not considered to be neurotoxic when male rats were exposed to 1500 ppm MIBK (contaminated with 3% methyl n-butyl ketone) for up to 5 months (6 hours/day, 5 days/week).
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 505 mg/L; 96 Hr.; Flow through; 25 degrees C, pH 7.5Fish: Goldfish: LC50 = 460 mg/L; 24 Hr.; UnspecifiedWater flea Daphnia: EC50 = 4280.0 mg/L; 24 Hr.; UnspecifiedAlgae: EC50 = 400 mg/L; 96 Hr.; UnspecifiedBacteria: 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: No information available.

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
Shipping Name:	METHYL ISOBUTYL KETONE	No information available.
Hazard Class:	3	
UN Number:	UN1245	
Packing Group:	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
CAS# 108-10-1: Section 4 (applies only to those companies that signed an Enforceable Consent Ag
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 Methyl isobutyl ketone (CAS# 108-10-1, >98.5%),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.

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.

Section 16 - Additional Information

MSDS Creation Date: 5/19/1999
Revision #7 Date: 6/06/2006