

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Flammable material; avoid heat and sources of ignition. Irritating to skin, eyes, and the respiratory system. Hygroscopic -- keep container tightly sealed. Store under nitrogen.	   

Section I. Chemical Product and Company Identification

Chemical Name	Ethyl Methyl Ketone		
Catalog Number	E0140	Supplier	TCI America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	2-Butanone		
Chemical Formula	C ₂ H ₅ COCH ₃		
CAS Number	78-93-3	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Ethyl Methyl Ketone	78-93-3	Min. 99.0 (GC)	Not available.	Rat LD ₅₀ (oral) 2737mg/kg Rat LC ₅₀ (inhalation) 23500mg/m ³ 78H Mouse LC ₅₀ (inhalation) 32000mg/m ³ /4H

Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Reproductive: rat (inhalation) 1000ppm/7H. Duration: female 6-15 days of pregnancy. Effects on embryo or fetus- Fetotoxicity. Specific developmental abnormalities- Musculoskeletal system. mouse (inhalation) 3000ppm/7H. Duration: female 6-15 days of pregnancy. Effects on embryo or fetus- Fetotoxicity. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes. Keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thorough wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

Section V. Fire and Explosion Data			
Flammability	Flammable.	Auto-Ignition	515°C (959°F)
Flash Points	-3°C (26.6°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Reactive with strong oxidizers. Vapors may travel to source of ignition and flash back. Closed containers may explode from heat of a fire. Highly flammable in presence of open flames and sparks, of heat.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No additional information is available regarding the risks of explosion.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemicals, CO ₂ , alcohol foam or water spray. LARGE FIRE: Use alcohol foam, water spray or fog.		

Section VI. Accidental Release Measures	
Spill Cleanup Instructions	Flammable liquid. Irritating material. Hygroscopic material. Store material under nitrogen. Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage	
Handling and Storage Information	FLAMMABLE. IRRITANT. HYGROSCOPIC. STORE UNDER NITROGEN. Handle with caution and minimize exposure. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, reducing agents, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection	
Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
	
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties			
Physical state @ 20°C	Liquid.	Solubility	Soluble in water, ethanol, ether, acetone, benzene, alcohol, 353000mg/L in water @ 10°C.
Specific Gravity	0.805	Partition Coefficient	Not available.
Molecular Weight	72.11	Vapor Pressure	71 mm Hg @ 20°C
Boiling Point	80°C (176°F)	Vapor Density	2.49
Melting Point	-87°C (-124.6°F)	Volatility	Not available.
Refractive Index	1.3814 @ 15°C	Odor	Acetone-like odor.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	Not available.		

Section X. Stability and Reactivity Data	
Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Protect from moisture. Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, strong reducing agents, alkalis (bases).

Section XI. Toxicological Information

RTECS Number	EL6475000
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 2737mg/kg Rat LC ₅₀ (inhalation) 23500mg/m ³ /8H Mouse LC ₅₀ (inhalation) 32000mg/m ³ /4H
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Reproductive: rat (inhalation) 1000ppm/7H. Duration: female 6-15 days of pregnancy. Effects on embryo or fetus- Fetotoxicity. Specific developmental abnormalities- Musculoskeletal system. mouse (inhalation) 3000ppm/7H. Duration: female 6-15 days of pregnancy. Effects on embryo or fetus- Fetotoxicity. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Methyl ethyl ketone's production and use as a solvent for coatings, resins, rubbers, plastics, pharmaceuticals, adhesives and rubber cements will result in its release to the environment through various waste streams. Its use as a starting material or intermediate in the manufacture of chemical products will also lead to its release to the environment. Methyl ethyl ketone occurs naturally as a metabolic by product of plants and animals and is released into the atmosphere by volcanoes and forest fires. Based on an experimental vapor pressure of 91 mm Hg at 25°, methyl ethyl ketone is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase methyl ethyl ketone is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an estimated atmospheric half-life of about 14 days. This compound is also expected to undergo photolysis in the atmosphere by natural sunlight. Photochemical degradation of methyl ethyl ketone by natural sunlight is expected to occur at approximately 1/5 the rate of degradation by photochemically produced hydroxy radicals. Methyl ethyl ketone is expected to have very high mobility in soils based upon measured Koc values of 29 and 34 obtained in silt loams. Volatilization from dry soil surfaces is expected based upon the vapor pressure of this compound. Volatilization from moist soil surfaces is also expected based upon the measured Henry's Law constant of 4.7X10 ⁻⁵ atm-cu m/mol. The volatilization half-life of methyl ethyl ketone from silt and sandy loams was measured as 4.9 days. This compound is expected to biodegrade under aerobic and anaerobic conditions. In water, methyl ethyl ketone is not expected to adsorb to suspended solids or sediment based upon its measured Koc values. Volatilization from water surfaces is expected to be an important environmental fate process given its Henry's Law constant. Estimated half-lives for a model river and model lake are 19 and 197 hours, respectively. Bioconcentration in aquatic organisms is considered low based upon an estimated BCF value of 1. Occupational exposure may be through inhalation and dermal contact with this compound at workplaces where methyl ethyl ketone is produced or used. The general population may be exposed to methyl ethyl ketone through the use of commercially available products containing this compound such as paints, adhesives, and rubber cements. Exposure will also arise from inhalation of ambient air and ingestion of drinking water and food that contains methyl ethyl ketone.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of the substance.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 3: Flammable liquid.
PIN Number	UN1193
Proper Shipping Name	Ethyl Methyl Ketone
Packing Group (PG)	II
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	WHMIS CLASS B-2: Flammable liquid with a flash point lower than 35°C (100°F).
EINECS Number (EEC)	201-159-0
EEC Risk Statements	R11- Highly flammable. R18- In use, may form flammable/explosive vapor-air mixture. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	Not available.

Section XVI. Other Information

Version 1.0
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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

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