



SAFETY DATA SHEET

SDS00926
METHYL ETHYL KETONE

Preparation Date: 11/Aug/2017

Version: 1

1. IDENTIFICATION

Product identifier

Product Name METHYL ETHYL KETONE

Other means of identification

Product Code(s) SDS00926

Synonyms 2-Butanone, 3-Butanone, Butanone, Ethyl Methyl Ketone, MEK, Methyl acetone, Methyl-2-propanone.

Recommended use of the chemical and restrictions on use

Recommended Use Solvent, diluent, chemical feedstock, or fuel.

Restricted Uses No information available

Initial Supplier Identifier

Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC V6X 1W5
Telephone: 1-866-686-4827

Emergency telephone number

24 Hour Emergency Phone Number (CANUTEC): 1-888-226-8832 (1-888-CAN-UTEC)

2. HAZARD IDENTIFICATION

Hazardous Classification of the substance or mixture

Flammable liquids	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3

Label elements

Hazard pictograms**Signal Word: Danger****Hazard statements**

Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness

Precautionary Statements**Prevention**

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Ground and bond container and receiving equipment
Use non-sparking tools
Take action to prevent static discharges
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep container tightly closed
Use explosion-proof electrical/ ventilating / lighting/ equipment
Keep cool

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Other Information

May be harmful if swallowed May be harmful in contact with skin

Unknown acute toxicity

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Chemical Name	CAS No	Weight-%	Synonyms
Methyl Ethyl Ketone	78-93-3	90 - 100%	Methyl Ethyl Ketone

4. FIRST AID**Description of first aid measures****General advice**

Show this safety data sheet to the doctor in attendance.

Inhalation

Remove to fresh air. IF exposed or concerned: Get medical advice/attention.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Ingestion

Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.

Self-protection of the first aider

Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed:

May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression. May cause moderate skin irritation. Symptoms of exposure may include: a burning sensation, redness, swelling and blurred vision. Aspiration hazard! Small amounts aspirated into the lungs during ingestion or vomiting may cause lung injury, possibly leading to death. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish discolored skin, rapid breathing and heart rate. Chemical pneumonitis from aspiration may result in fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after the exposure, depending on how much chemical entered the lungs. Causes eye irritation Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing and difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and fever. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death. Burning sensation may result.

Indication of any immediate medical attention and special treatment needed:**Note to physicians**

Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol resistant foam.

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the substance or mixture

Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Do not allow runoff to enter waterways or sewer. Isolate and restrict area access. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. Move containers from fire area if you can do it without risk. Stop leak only if safe to do so. Fight fire from a safe distance and from a protected location. Flammable liquid. This material may produce a floating fire hazard in extreme fire conditions.

Hazardous combustion products

Peroxides.

Special protective equipment for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material.

Environmental precautions

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up

Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment. Flammable. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 10 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Extinguish any naked flames.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep containers tightly closed. Store

out of direct sunlight and on an impermeable floor.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical Name	Alberta OEL	British Columbia OEL	Ontario	Quebec OEL	Exposure Limit - ACGIH	Immediately Dangerous to Life or Health - IDLH
Methyl Ethyl Ketone 78-93-3	TWA: 200 ppm TWA: 590 mg/m ³ STEL: 300 ppm STEL: 885 mg/m ³	TWA: 50 ppm STEL: 100 ppm	TWA: 200 ppm STEL: 300 ppm	TWA: 50 ppm TWA: 150 mg/m ³ STEL: 100 ppm STEL: 300 mg/m ³	300 ppm STEL 200 ppm TLV-TWA	3000 ppm

Consult local authorities for recommended exposure limits

Appropriate engineering controls

Engineering controls

Use explosion proof equipment. Local exhaust ventilation as necessary to maintain exposures to within applicable limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical goggles; also wear a face shield if splashing hazard exists.

Hand protection

Butyl rubber gloves. Impervious gloves. 4H(R). Silver Shield (R).

Skin and body protection

Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Respiratory protection

If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator.

General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Physical state	Liquid
Color	Clear
Odor	Sweet KETONE
Odor threshold	No information available

<u>PROPERTIES</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	none known
Melting point / freezing point	-86 °C / -123 °F	
Initial boiling point/boiling range	79 °C / 174 °F	
Flash point	-9 °C / 16 °F	Closed cup.
Evaporation rate	2.7 (ether =1)	
Flammability (solid, gas)	No data available	none known
Flammability Limit in Air		none known
Upper flammability limit:	11.5	
Lower flammability limit:	1.8	
Vapor pressure	10.33 kPa (77.5 mmHg) @ 20°C	
Relative vapor density	2.41	
Specific Gravity	0.804-0.806	
Water solubility	Completely miscible	
Solubility in other solvents	No data available	
Partition coefficient	No data available	none known
Autoignition temperature	404-515 °C / 759-959 °F	
Decomposition temperature	No data available	none known
Kinematic viscosity	0.52 cS	
Dynamic viscosity	No data available	none known
Explosive properties	No information available.	
Oxidizing properties	No information available.	
Molecular weight	72.11	
VOC Percentage Volatility	No information available	
Liquid Density	No information available	
Bulk density	No information available	

10. STABILITY AND REACTIVITY

Reactivity/Chemical Stability

Stable

Possibility of hazardous reactions

No additional remark.

Hazardous polymerization

Will not occur.

Conditions to avoid

Avoid excessive heat, open flames and all ignition sources.

Incompatible materials

Strong bases. Oxidizing agents. Reducing agents. Strong alkalis. Aldehydes. Halogens. Hydrogen peroxide. Amines. Ammonia.

Hazardous decomposition products

Peroxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation

Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing and difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and fever. High concentrations may cause

central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Eye contact

Symptoms of exposure may include: a burning sensation, redness, swelling and blurred vision. Causes eye irritation.

Skin contact

May cause moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis. Burning sensation may result.

Ingestion

May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression. Aspiration hazard! Small amounts aspirated into the lungs during ingestion or vomiting may cause lung injury, possibly leading to death. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish discolored skin, rapid breathing and heart rate. Chemical pneumonitis from aspiration may result in fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after the exposure, depending on how much chemical entered the lungs.

Information on toxicological effects

Symptoms

Methyl Ethyl Ketone (MEK) is expected to cause no or mild skin irritation. Repeated or prolonged contact can produce dermatitis (red, dry, itchy skin) and whitening of the skin. Animal evidence suggests that MEK is a moderate to severe eye irritant. Brief exposures to MEK vapors produced slight nose and throat irritation. Higher exposures are expected to cause central nervous system depression with symptoms such as headache, nausea, dizziness, drowsiness, and confusion. Extremely high concentrations may cause loss of consciousness and possibly death. Ingestion of MEK is expected to cause central nervous system depression with symptoms such as headache, nausea, dizziness, drowsiness, and confusion. Animal evidence suggests that MEK can be aspirated (inhaled) into the lungs during ingestion or vomiting. Aspiration of even a small amount of liquid could result in a life threatening accumulation of fluid in the lungs. Severe lung damage (edema), respiratory failure, cardiac arrest and death may result. Animal studies have confirmed synergism between MEK and ethyl n-butyl ketone, methyl n-butyl ketone, n-hexane, carbon tetrachloride, 2,5-hexanedione and chloroform. Principal target organs involved in toxicological interactions are the nervous system and liver, although the lung has also been implicated.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	2,483.00 mg/kg
ATEmix (dermal)	5,000.00 mg/kg

Unknown acute toxicity No information available

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Methyl Ethyl Ketone 78-93-3	= 2483 mg/kg (Rat)	= 5000 mg/kg (Rabbit)	= 11700 ppm (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

May cause moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis. Burning sensation may result.

Serious eye damage/eye irritation

Symptoms of exposure may include: a burning sensation, redness, swelling and blurred vision. Causes eye irritation.

Respiratory or skin sensitization

No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

No information available.

Chemical Name	ACGIH	IARC	NTP	OSHA
Methyl Ethyl Ketone 78-93-3	Not available	Not available	Not available	Not available

Reproductive toxicity

Methyl ethyl ketone - three animal studies have shown fetotoxicity (skeletal anomalies) at doses which did not produce any or only very slight maternal toxicity.

Specific target organ systemic toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ systemic toxicity - repeated exposure

No information available.

Aspiration hazard

No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Ecotoxicity - Freshwater Algae Data	Ecotoxicity - Fish Species Data	Toxicity to microorganisms	Crustacea
Methyl Ethyl Ketone 78-93-3	Not available	3130 - 3320 mg/L LC50 (Pimephales promelas) 96 h flow-through	Not available	EC50: 4025 - 6440mg/L (48h, Daphnia magna) EC50: =5091mg/L (48h, Daphnia magna) EC50: >520mg/L (48h, Daphnia magna)

Persistence and degradability No information available.**Bioaccumulation** No information available.**Component Information**

Chemical Name	Partition coefficient
Methyl Ethyl Ketone 78-93-3	0.3

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

14. TRANSPORT INFORMATION

TDG (Canada):

UN Number UN1193
Shipping name METHYL ETHYL KETONE
Class 3
Packing Group II
Marine pollutant Not available.

DOT (U.S.)

UN Number UN1193
Shipping name METHYL ETHYL KETONE
Class 3
Packing Group II
Marine pollutant Not available

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Regulatory Rules

Chemical Name	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Methyl Ethyl Ketone - 78-93-3	Not Listed	Listed	Not Listed

International Inventories

TSCA Complies
DSL/NDSL Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA: Health hazards 2 Flammability 3 Instability 0 Physical and chemical properties -
HMIS Health Rating: Health hazards 2 Flammability 3 Physical hazards 0 Personal protection X

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) **STEL** STEL (Short Term Exposure Limit)
Ceiling Maximum limit value * Skin designation

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.

Preparation Date: 11/Aug/2017

Revision Date: 11/Aug/2017

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End of Safety Data Sheet