

MATERIAL SAFETY DATA SHEET

2-Butanone

Section 1 - Chemical Product and Company Identification

MSDS Name:	2-Butanone
Synonyms:	Methyl Ethyl Ketone; MEK

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	%	EINECS#
78-93-3	2-Butanone	>99%	201-159-0

Hazard Symbols:	XI F
	
Risk Phrases:	11 36 66 67

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.

Potential Health Effects

Eye:	Causes eye irritation. May result in corneal injury.
Skin:	Causes mild skin irritation. May be absorbed through the skin. Repeated or prolonged exposure may cause drying and cracking of the skin.
Ingestion:	May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation:	May cause respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness.
Chronic:	Chronic inhalation may cause effects similar to those of acute inhalation.

Section 4 - First Aid Measures

Eyes:	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid. Do NOT allow victim to rub eyes or keep eyes closed.
Skin:	Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion:	Get medical aid. Wash mouth out with water.
Inhalation:	Remove from exposure and move to fresh air immediately. 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. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable liquid and vapor.
Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or chemical foam.

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. Avoid runoff into storm sewers and ditches which lead to waterways. 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. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Take precautionary measures against static discharges. Avoid ingestion and inhalation.
Storage:	Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

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	
	CAS# 78-93-3:
	United Kingdom, WEL - TWA: 200 ppm TWA; 600 mg/m ³ TWA United Kingdom, WEL - STEL: 300 ppm STEL; 899 mg/m ³ STEL
	United States OSHA: 200 ppm TWA; 590 mg/m ³ TWA
	Belgium - TWA: 200 ppm VLE; 600 mg/m ³ VLE Belgium - STEL: 300 ppm VLE; 900 mg/m ³ VLE
	France - VME: 200 ppm VME; 600 mg/m ³ VME France - VLE: 300 ppm VLE; 900 mg/m ³ VLE
	Germany: 200 ppm TWA; 600 mg/m ³ TWA Germany: skin notation
	Japan: 200 ppm OEL; 590 mg/m ³ OEL
	Malaysia: 200 ppm TWA; 590 mg/m ³ TWA
	Netherlands: 200 ppm MAC; 590 mg/m ³ MAC
	Russia: 200 mg/m ³ TWA (vapour)
	Spain: 200 ppm VLA-ED; 600 mg/m ³ VLA-ED Spain: 300 ppm VLA-EC; 900 mg/m ³ VLA-EC

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.
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Section 9 - Physical and Chemical Properties

Physical State:	Clear liquid
Color:	colorless
Odor:	sweetish odor - characteristic odor
pH:	Not available
Vapor Pressure:	105mbar @20 deg C
Viscosity:	0.42 mPa s @15 deg C
Boiling Point:	80 deg C @760mmHg (176.00°F)
Freezing/Melting Point:	-87 deg C (-124.60°F)
Autoignition Temperature:	404 deg C (759.20 deg F)
Flash Point:	-7 deg C (19.40 deg F)
Explosion Limits: Lower:	1.8 Vol %
Explosion Limits: Upper:	11.5 Vol %
Decomposition Temperature:	Not available
Solubility in water:	290 g/l (20°C)
Specific Gravity/Density:	0.806
Molecular Formula:	C4H8O
Molecular Weight:	72.11

Section 10 - Stability and Reactivity

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Incompatible materials, ignition sources, excess heat.
Incompatibilities with Other Materials	Oxidizing agents, ammonia, copper, nitric acid, sulfuric acid, isocyanates, hydrogen peroxide, amines (aliphatic and aromatic, e.g. dimethylamine, propylamine, pyridine, triethylamine), caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), chlorosulfonic acid.
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide.
Hazardous Polymerization	Will not occur.

Section 11 - Toxicological Information

RTECS#:	CAS# 78-93-3: EL6475000
LD50/LC50:	RTECS: CAS# 78-93-3: Draize test, rabbit, eye: 80 mg; Draize test, rabbit, skin: 500 mg/24H Moderate; Draize test, rabbit, skin: 402 mg/24H Mild; Inhalation, mouse: LC50 = 32 gm/m3/4H; Inhalation, rat: LC50 = 23500 mg/m3/8H; Oral, mouse: LD50 = 3000 mg/kg; Oral, rat: LD50 = 2737 mg/kg; Skin, rabbit: LD50 = 6480 mg/kg;
Carcinogenicity:	2-Butanone - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop

	65.
Other:	See actual entry in RTECS for complete information. Mutagenicity: Ames-test: negative.

Section 12 - Ecological Information

Ecotoxicity:	Daphnia: Daphnia: EC50: 5091 mg/L; 7 days; Fish: Fathead Minnow: LC50: 3220 mg/L; 48h; . Bacteria: Pseudomonas putida: EC50: 1150 mg/L; 16h;
Other:	Do not empty into drains. Readily biodegradable. Log POW: 0.29 (exp.)

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations

Section 14 - Transport Information

	IATA	IMO	RID/ADR
Shipping Name:	ETHYL METHYL KETONE	ETHYL METHYL KETONE	ETHYL METHYL KETONE
Hazard Class:	3	3	3
UN Number:	1193	1193	1193
Packing Group:	II	II	II

USA RQ: CAS# 78-93-3: 5000 lb final RQ; 2270 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI F

Risk Phrases:

- R 11 Highly flammable.
- R 36 Irritating to eyes.
- R 66 Repeated exposure may cause skin dryness or cracking.
- R 67 Vapours may cause drowsiness and dizziness.

Safety Phrases:

- S 9 Keep container in a well-ventilated place.
- S 16 Keep away from sources of ignition - No smoking.

WGK (Water Danger/Protection)

- CAS# 78-93-3: 1

Canada

- CAS# 78-93-3 is listed on Canada's DSL List

US Federal

- TSCA
- CAS# 78-93-3 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date:	July 22, 2015
Revision #0 Date	

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