

Material Safety Data Sheet

2-Butanone

ACC# 14460

Section 1 - Chemical Product and Company Identification

MSDS Name: 2-Butanone

Catalog Numbers: AC149670000, AC149670025, AC149670051, AC149670250, AC149670251, AC213010000, AC213015000, AC327910000, AC327910010, AC327911000, AC389430000, AC389430010, AC389430025, AC389570000, AC389570010, AC389570025, 14967-0010, M208-1, M208-20, M208-4, M209-1, M209-20, M209-200, M209-4, M209-500, M209FB115, M209FB19, M209FB200, M209FB50, M209RB-115, M209RS19, M209RS200, M209RS28, M209RS50, M209S-4, M209SS115, M209SS200, M209SS28, M209SS50

Synonyms: Ethyl methyl ketone; Methyl ethyl ketone; MEK.**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
78-93-3	2-Butanone	99+	201-159-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: -7 deg C.

Danger! Flammable liquid and vapor. Breathing vapors may cause drowsiness and dizziness. Causes eye and skin irritation. Repeated exposure may cause skin dryness or cracking. May cause respiratory tract irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage.

Target Organs: Kidneys, central nervous system, liver, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. Animal evidence suggests that MEK is a moderate to severe eye irritant.**Skin:** Causes skin irritation. May be harmful if absorbed through the skin. Repeated or prolonged exposure may cause drying and cracking of the skin. Only one human case of skin sensitization was located.

Negative results were obtained in an animal test; MEK did not produce skin sensitization in the mouse ear

thickness test.

Ingestion: Aspiration hazard. May cause irritation of the digestive tract. May be harmful if swallowed. May cause lung damage. Animal evidence suggests that MEK can be aspirated (inhaled) into the lungs during ingestion or vomiting.

Inhalation: May cause respiratory tract irritation. May be harmful if inhaled. Inhalation of vapors may cause drowsiness and dizziness. Neurobehavioural effects of exposure to MEK (200 ppm for 4 hrs) were studied with 137 volunteers. There were no statistically significant effects observed in biochemical, psychomotor, sensorimotor and psychological tests.

Chronic: May cause liver and kidney damage. Adverse reproductive effects have been reported in animals.

Section 4 - First Aid Measures

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

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

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: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Possible aspiration hazard. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

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 may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: -7 deg C (19.40 deg F)

Autoignition Temperature: 404 deg C (759.20 deg F)

Explosion Limits, Lower: 1.4 vol %

Upper: 11.5 vol %

NFPA Rating: (estimated) Health: 1; 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. 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. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

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: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2-Butanone	200 ppm TWA; 300 ppm STEL	200 ppm TWA; 590 mg/m ³ TWA 3000 ppm IDLH	200 ppm TWA; 590 mg/m ³ TWA

OSHA Vacated PELs: 2-Butanone: 200 ppm TWA; 590 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

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: sweetish odor - characteristic odor

pH: Not available.

Vapor Pressure: 105 mbar @ 20 deg C

Vapor Density: 2.41 (air=1)

Evaporation Rate:3.7 (nBuAc=1)

Viscosity: 0.42 mPa @ 15 deg C

Boiling Point: 80 deg C @ 760 mmHg

Freezing/Melting Point:-87 deg C

Decomposition Temperature:Not available.

Solubility: Soluble.

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: Ammonia, copper, nitric acid, sulfuric acid, isocyanates, hydrogen peroxide, amines, caustics, 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:

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:

CAS# 78-93-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Mutagenicity: Mutation in microorganisms: See actual entry in RTECS for complete information.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 3220 mg/L; 96 Hr; UnspecifiedFish: Bluegill/Sunfish: LC50 = 1690 mg/L; 96 Hr; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 51.9 mg/L; 25 min; Microtox testBacteria: Phytobacterium phosphoreum: EC50 = 3373 mg/L; 30 min; Microtox test No data available.

Environmental: Substance evaporates in water with T1/2 = 3D (rivers) to 12D (lakes). Substance is not expected to bioconcentrate in aquatic organisms.

Physical: Substance photodegrades in air with T1/2 = 2.3 days. Oxidizes rapidly by photo-chemical reactions in air. Readily biodegradable meeting the 10 day window criterion. Not expected to

bioaccumulate significantly.

Other: Do not empty into drains.

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# 78-93-3: waste number U159 (Ignitable waste, Toxic waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	ETHYL METHYL KETONE	ETHYL METHYL KETONE
Hazard Class:	3	3
UN Number:	UN1193	UN1193
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

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

Health & Safety Reporting List

CAS# 78-93-3: Effective 10/4/82, Sunset 10/4/92

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 78-93-3: 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 # 78-93-3: immediate, delayed, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

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# 78-93-3 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:**

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 16 Keep away from sources of ignition - No smoking.

S 9 Keep container in a well-ventilated place.

WGK (Water Danger/Protection)

CAS# 78-93-3: 1

Canada - DSL/NDSL

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

Canada - WHMIS

This product has a WHMIS classification of B2, D2B.

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# 78-93-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 7/21/1999

Revision #9 Date: 7/28/2008

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.