








Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Personal protective equipment
 	Class B-2: Flammable liquid Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).	  

Section 1. Product and Company Identification

Product name / Trade name	Methy Ethyl Ketone	Associated Product's Item Code	MEK
Synonym	acetone, methyl-; aethylmethylketon (german); butanone; butanone 2 (french); ethyl methyl cetone (french); ethylmethylketon (dutch); ethyl methyl ketone; ethyl methyl ketone (dot); ketone, ethyl methyl; meetco; methyl acetone; methyl acetone (dot); methyl ethyl ketone; methyl ethyl ketone (dot); metiletilchetone (italian); metyloetyloketon (polish); 2-butanone; mek; butan-2-one; ketone, methyl ethyl; 2-oxobutane; methyl ethyl ketone (mek)	CAS #	78-93-3
Chemical family	Solvent.	Validation date	2/10/2009.
Chemical formula	C4-H8-O	Print date	2/10/2009.
Manufacturer	Recochem Inc. 850 Montee de Liesse Montreal, Quebec H4T 1P4 (514) 341-3550 www.recochem.com	In case of emergency	Recochem Inc. Communications and Regulatory Affairs Department (905) 791-1788
Material uses	Consumer products: Solvent. Other non-specified industry: SOLVENT IN NITROCELLULOSE COATINGS AND VINYL FILMS; "GLYPTAL" RESINS; PAINT REMOVERS; CEMENTS AND ADHESIVES; ORGANIC SYNTHESIS; MANUFACTURE OF SMOKELESS POWDER; CLEANING FLUIDS; PRINTING; CATALYST CARRIER; ACRYLIC COATINGS. NOTE: DOES NOT DISSOLVE CELLULOSE ACETATE AND MOST WAXES.		

Section 2. Hazards identification

Emergency Overview	DANGER ! EXTREMELY FLAMMABLE LIQUID AND VAPOR. FLAMMABLE. VAPOR MAY CAUSE FLASH FIRE. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. Extremely flammable liquid. Keep away from heat, sparks and flame. Avoid breathing vapor or mist. Avoid contact with skin and clothing. May cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use.
Potential Acute Health Effects	See section 11 for more detailed information on health effects and symptoms. Hazardous by the following route of exposure: of eye contact (irritant). Slightly hazardous by the following route of exposure: of ingestion, of inhalation. May cause central nervous system depression.
Note to Physician	Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possible death.

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**Section 3. Composition, information on ingredients****Canada**

<u>Name</u>	<u>CAS number</u>	<u>%</u>
butanone	78-93-3	100

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First aid measures

Eye contact	Immediately flush eyes with plenty of water for at least 60 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation	Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Notes to physician	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 5. Fire fighting measures

Products of combustion	Decomposition products may include the following materials: carbon oxides
Fire-fighting media and instructions	Use dry chemical, CO ₂ , water spray (fog) or foam.
Fire Hazards	EXTREMELY FLAMMABLE LIQUID AND VAPOUR.
Explosion Hazards	Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapour forms explosive mixture with air between upper and lower flammable limits.

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**Section 6. Accidental release measures**

Small spill and leak	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
Large spill and leak	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7. Handling and Storage

Handling	Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
Storage	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls, personal protection

Engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
Personal protection	
<i>Eyes</i>	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: splash goggles
<i>Body</i>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<i>Respiratory</i>	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
<i>Hands</i>	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. >8 hours (breakthrough time): nitrile rubber

Product name**Exposure limits****Canada****Continued on next page**



butanone

ACGIH (Canada, 2003).

TWA: 200 ppm 8 hour(s).
STEL: 300 ppm 15 minute(s).
TWA: 590 mg/m³ 8 hour(s).
STEL: 885 mg/m³ 15 minute(s).

CA Alberta Provincial (Canada, 10/2006).

8 hrs OEL: 200 ppm 8 hour(s).
15 min OEL: 300 ppm 15 minute(s).
8 hrs OEL: 590 mg/m³ 8 hour(s).
15 min OEL: 885 mg/m³ 15 minute(s).

CA British Columbia Provincial (Canada, 7/2007).

TWA: 50 ppm 8 hour(s).
STEL: 100 ppm 15 minute(s).

CA Ontario Provincial (Canada, 3/2007).

TWAEV: 200 ppm 8 hour(s).
TWAEV: 590 mg/m³ 8 hour(s).
STEV: 300 ppm 15 minute(s).
STEV: 885 mg/m³ 15 minute(s).

CA Quebec Provincial (Canada, 12/2006).

TWAEV: 50 ppm 8 hour(s).
TWAEV: 150 mg/m³ 8 hour(s).
STEV: 100 ppm 15 minute(s).
STEV: 300 mg/m³ 15 minute(s).

United States

butanone

OSHA (United States, 2003).

TWA: 200 ppm 8 hour(s).
TWA: 590 mg/m³ 8 hour(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 200 ppm 8 hour(s).
TWA: 590 mg/m³ 8 hour(s).
STEL: 300 ppm 15 minute(s).
STEL: 885 mg/m³ 15 minute(s).

ACGIH TLV (United States, 1/2007).

TWA: 200 ppm 8 hour(s).
TWA: 590 mg/m³ 8 hour(s).
STEL: 300 ppm 15 minute(s).
STEL: 885 mg/m³ 15 minute(s).

NIOSH REL (United States, 12/2001).

TWA: 200 ppm 10 hour(s).
TWA: 590 mg/m³ 10 hour(s).
STEL: 300 ppm 15 minute(s).
STEL: 885 mg/m³ 15 minute(s).

OSHA PEL (United States, 11/2006).

TWA: 200 ppm 8 hour(s).
TWA: 590 mg/m³ 8 hour(s).

**Section 9. Physical and chemical properties**

Physical State and Appearance	Liquid. [CLEAR COLORLESS LIQUID WITH A FRAGRANT, MINT-LIKE, MODERATELY SHARP ODOR]	Odour	LIKE ACETONE; PLEASANT; PUNGENT
Molecular weight	72.12 g/mole	Taste	Not available.
pH	7	Colour	Clear. Colourless.
Boiling/condensation point	79.6°C (175.3°F)	Volatility	100% (v/v)
Melting/freezing point	-86.1°C (-123°F)	Evaporation rate	7.12 (Butyl acetate. = 1)
Relative density	0.806	Odour Threshold	2 to 85 ppm
Vapour Pressure	9.5 kPa (71.2 mm Hg)	Viscosity	Dynamic: 0.41 mPa-s (0.41 cP)
Vapour Density	2.42 [Air = 1]	Solubility	Easily soluble in the following materials: cold water, methanol, diethyl ether. Partially soluble in the following materials: n-octanol.
VOC Content	807 (g/l).	Other Properties	Not available.

The product is: Flammable.

Auto-ignition temperature 515.55°C (960°F)

Flash Point Closed cup: -9.15°C (15.5°F) [Tagliabue.]

Flammable limits Lower: 1.8%
Upper: 10%

Fire hazards in the presence of various substances Extremely flammable in the presence of open flames, sparks and static discharge.

Section 10. Stability and reactivity

Stability The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions of instability Not available.

Incompatibility with various substances Slightly reactive to reactive with oxidizing agents, reducing agents, acids, alkalis.

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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**Section 11. Toxicological Information****Canada****Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
butanone	LD50 Dermal	Rabbit	6480 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Intraperitoneal	Rat	607 mg/kg	-
	LD50 Oral	Rat	2740 mg/kg	-
	LD50 Oral	Rat	2737 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Exposure can cause dermatitis.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
butanone	A4	-	D	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

DLH : 3000 ppm

Section 12. Ecological information

For accidental discharges into the environment, see Section 6: "Accidental Release Measures" for suggested instructions.

Environmental effects : This product shows a low bioaccumulation potential.

Canada**Aquatic ecotoxicity**

Product/ingredient name	Test	Result	Species	Exposure
butanone	-	Acute EC50 5091000 to 6440000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 >400 ppm Marine water	Fish - Cyprinodon variegatus	96 hours
	-	Acute LC50 3220000 to 3320000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50	Daphnia -	48 hours

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	>520000 ug/L Fresh water	Daphnia magna	
	-	Acute LC50 5600000 ug/L Fresh water	Fish - Gambusia affinis 96 hours
Conclusion/Summary	: Not available.		
Biodegradability			
Conclusion/Summary	: Not available.		

Section 13. Disposal considerations

Waste information The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information**Canada TDG Classification**

Class	Class 3: Flammable liquid.
Subsidiary class	-
Proper Shipping Name (Canada) TDG	ETHYL METHYL KETONE; OR METHYL ETHYL KETONE
UN number	UN1193
Packing Group	II
Special provisions	In containers of 1 L (1Kg) capacity or less this product is classified as a "Limited Quantities" Consumer Commodity" under TDG regulations.

**IMDG Classification**

Class	Class 3: Flammable liquid.
Subsidiary class	-
Proper Shipping Name IMDG	ETHYL METHYL KETONE (METHYL ETHYL KETONE)
UN number	UN1193
Packing Group	II
Marine pollutant	Not a pollutant.
Special provisions	In containers of 1 L (1Kg) capacity or less this product is classified as a "Limited Quantity" under IMDG regulations



No placard (handling and hazard label) required

United States DOT (Classification)

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Class	Class 3: Flammable liquid.	
Subsidiary class	-	
Proper Shipping Name (United States) DOT	ETHYL METHYL KETONE OR METHYL ETHYL KETONE	
UN number	UN1193	
Packing Group	II	
Special provisions	In containers of 1 L (1Kg) this product is qualified as a "consumer commodity" ORM-D under DOT	
International Air Transport Association (IATA)	For air shipment classification and associated regulations, please refer to the latest edition of IATA Dangerous Goods Regulations.	

Section 15. Regulatory information

WHMIS Classification (Canada)	Class B-2: Flammable liquid Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).									
Canada Domestic Substances List (DSL) Status	This product and/ or all of its components are on the DSL.									
HCS Classification (U.S.A.)	Flammable liquid Target organ effects									
U.S.A. Regulatory Lists	This product and/ or all of its components are on the TSCA inventory list.									
Hazardous Material Information System (U.S.A.)	<table border="1"> <tr> <td>Health</td> <td>1</td> </tr> <tr> <td>Flammability</td> <td>4</td> </tr> <tr> <td>Reactivity</td> <td>0</td> </tr> <tr> <td>Personal protection</td> <td>J</td> </tr> </table>	Health	1	Flammability	4	Reactivity	0	Personal protection	J	National Fire Protection Association (U.S.A.) Health 1, Flammability 4, Reactivity 0, Specific hazard
Health	1									
Flammability	4									
Reactivity	0									
Personal protection	J									

Section 16. Other information

Validated and verified by Compliance and Technical Information Manager on 2/10/2009 ph.# 905-791-1788.

Printed 2/10/2009.

Notice to reader

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MSDS are available at www.recochem.com