



5515 North Service Rd. #306
Burlington, Ontario L7L 6G4

Phone: 905-337-7411
Fax: 905-337-1686

megaloid.ca



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1. IDENTIFICATION

Name: Methyl Isobutyl Ketone

Synonyms: 2-methyl-4-pentanone, 4-methyl-2-pentanone, isopropylacetone, MIBK

Product Uses: Solvent in coatings, for extraction, adhesives, reagent

Supplier: Megaloid Laboratories Limited
Identifier: 5515 North Service Road # 306
Burlington, ON L7L 6G4

EMERGENCY INFORMATION: Call CHEMTREC - (800) 424-9300
(CCN# 693764)

2. HAZARD IDENTIFICATION

GHS Class <i>(category)</i>	Flammable liquid <i>(2)</i>	Acute inhalation toxicity <i>(4)</i>	Causes eye irritation <i>(2A)</i>	STOT <i>(3)</i>	Carcinogenicity <i>(2)</i>
Signal Word	DANGER				
Hazard Statements	Highly flammable liquid & vapour (H225)	Harmful if inhaled (H332)	Causes serious eye irritation (H319)	May cause respiratory irritation (H335)	Suspected of causing cancer on inhalation (H351)

Hazardous Pictograms



GHS Precautionary Statements for Labelling

Prevention:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating, and lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands and skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF EXPOSED OR CONCERNED: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P312	Call a POISON CENTRE or doctor if you feel unwell.
P370+P378	In case of fire: Use appropriate foam to extinguish.
Storage:	
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
Disposal:	
P501	Dispose of contents and container in accordance with local, regional, national and international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	CAS No.	%	Other Identifiers
Methyl Isobutyl Ketone	108-10-1	100	EC#203-550-1

4. FIRST-AID MEASURES

THIS INFORMATION IS PRESENTED FOR YOUR CONSIDERATION IN THE BELIEF THAT IT IS ACCURATE AND RELIABLE; HOWEVER, NO WARRANTY EITHER EXPRESSED OR IMPLIED IS MADE AND NO FREEDOM FROM LIABILITY FROM PATENTS, TRADEMARKS, OR OTHER LIMITATIONS SHOULD BE INFERRED

Inhalation

Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If breathing stops, administer artificial respiration and seek medical aid promptly.

Skin Contact

Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.

Eye Contact

Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.

Ingestion

Give plenty of water to dilute product. Do not induce vomiting. Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Most important symptoms and effects, both acute and delayed

Causes serious eye irritation.

Harmful if inhaled.

May cause respiratory irritation.

Notes to physician

Treat symptomatically

First-aid Comments

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

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

Foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water - water jet spreads flames.

Unsuitable Extinguishing Media

Water may be ineffective. The product will float on water and can be reignited on surface water.

Specific Hazards Arising from the Product

Carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments.

Special Protective Equipment and Precautions for Fire-fighters

Firefighters must wear SCBA Full Bunker Gear.

Static Charge Accumulation

Static Charge Accumulation - cannot accumulate a static charge on agitation or pumping

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Ventilate area. Eliminate all ignition sources if safe to do so. Notify government occupational health and safety and environmental authorities.

Environmental Precautions

It is good practice to prevent releases into the environment. Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas. Minimize the use of water to prevent environmental contamination.

Methods and materials for containment and cleaning up

Leak Precaution: Dyke to control spillage and prevent environmental contamination handling
 Spill: Ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal.

7. HANDLING & STORAGE

Precautions for Safe Handling

Electrical & mechanical equipment (including lighting, switchgear & forklift trucks) used with or around this product must be explosion-proof. Ground or electrically bond the source container, receiving container & transfer pump before transferring contents. Use non-sparking bronze or aluminum hand tools. Avoid splashing by ensuring that the product nozzle is below the surface in the receiving container.

This product may react with oxygen in the air to form explosive or flammable peroxides, particularly at elevated temperature. Keep containers full & tightly sealed. If prolonged storage of a part container is anticipated, flush headspace with dry nitrogen gas prior to sealing. Empty containers may contain a flammable / explosive vapour. Always ensure that containers, empty or full, are tightly sealed unless in use.

Avoid breathing product vapour. Use with adequate ventilation. If dealing with a spill, and ventilation is impossible or impractical, wear a suitable respirator with an organic vapour cartridge.

Conditions for Safe Storage

Store in a cool, dry environment, away from sources of ignition, heat and oxidising agents.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV 20ppm / 82mg/m³
AGGIH TLV 20ppm / 82mg/m³
OSHA PEL 50ppm / 205mg/m³

Ontario STEV 75ppm / 307mg/m³
ACGIH STEL 75ppm / 307mg/m³
OSHA STEL 75ppm / 305mg/m³

Ventilation	mechanical ventilation may be required to control airborne titre to regulated limits; a respirator with organic vapour cartridge should be available in case of a spill or should ventilation fail (always store respirator in an airtight container [eg: "Tupperware"] to maintain cartridge "freshness")
Hands	no special protective gloves required; "Barrier" or "Silver Shield" gloves are resistant – other types also protect; always confirm suitability with supplier
Eyes	safety glasses with side shields or chemical goggles – always protect eyes!
Clothing	no special protective clothing required

9. PHYSICAL & CHEMICAL PROPERTIES

Odour & Appearance	clear, colourless, liquid with a sweetish, camphor-like odour
Odour threshold	approx. 8ppm
pH	none – <i>does not yield hydrogen ions in solution</i>
Melting point/Freezing point	-80°C / -112°F, -85°C / -121°F
Initial boiling point/boiling range	116°C / 241°F, 118°C / 244°F
Flash point	13°C / 56°F (closed cup) – <i>also 18°C / 54°F (closed cup)</i>
Evaporation rate (<i>Butyl Acetate = 1</i>)	not known – <i>similar to water</i>
Flammability (solid; gas)	no data available
Lower flammable/explosive limit	1.2%
Upper flammable/explosive limit	8%
Vapour pressure	91 hPa @ 50°C
Vapour density (<i>air = 1</i>)	3.5
Relative density (<i>water =1</i>)	0.801 at 20 °C (68 °F) / 20 °C
Water Solubility	14 grams/litre (20°C / 68°F); 16-20 grams/litre (20°C / 68°F)
Partition coefficient – n-octanol/water	1.38
Auto ignition temperature	448°C / 840°F – <i>also 460°C / 860°F</i>
Decomposition temperature	not known – <i>no decomposition up to autoignition temperature</i>
Viscosity	0.6centipoise (20°C / 68°F) – <i>thin mobile liquid</i>

10. STABILITY AND REACTIVITY

Reactivity

Strong oxidising agents

Also Reactive With

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Strong alkalis, reducing agents

Chemical Stability

Stable; will not polymerize

Possibility of Hazardous Reactions

Hazardous polymerization does not occur.

Conditions to avoid

Avoid contact with heat, sparks, open flame, and static discharge. Avoid any source of ignition.

Incompatible materials

Strong oxidizing agents, Peroxides

Hazardous decomposition products

Thermal decomposition products may include oxides of carbon.

Mechanical Impact

Not sensitive

11. TOXICOLOGICAL INFORMATION

Acute Toxicity	
Skin Contact	may be slightly irritating
Skin Absorption	yes, slowly; toxic effects unlikely by this route
Eye Contact	may be severely irritating; vapour irritating above 200ppm
Inhalation	irritating above 400ppm; headache, dizziness, drowsiness, intoxication
Ingestion	headache, dizziness, drowsiness, intoxication & vomiting
LD₅₀ (oral)	2080, 2850, 2980 & 4600mg/kg (rat), 1900mg/kg (mouse), 1600mg/kg (guinea pig)
LD₅₀ (skin)	>2000 & >3000mg/kg (rabbit)
LC₅₀ (inhalation)	1200 & 5700ppm (mouse), 2836ppm (rat), 2000-4000ppm (rat)

11. TOXICITY, CONTINUED

General - prolonged or repeated exposure may cause dermatitis

Sensitising - not a sensitiser

Carcinogen - not known to be a carcinogen in humans; *chronic inhalation at 450ppm caused pre-cancerous lesions in mice of a type not known to occur in humans*; IARC: Group 2B – Possibly carcinogenic to humans. ACGIH®: A3 – Confirmed animal carcinogen. NTP: Not specifically listed. OSHA: Not specifically listed. **NOTE: Not classified as a carcinogen under GHS in Europe.**

Key to Abbreviations - ACGIH® = American Conference of Governmental Industrial Hygienists. IARC = International Agency for Research on Cancer. NTP = National Toxicology Program. OSHA = US Occupational Safety and Health Administration.

Reproductive Effect - no known effect on humans or animals

Mutagen - not known to be a mutagen in humans or animals

Synergistic with - not known

12. ECOLOGICAL INFORMATION

Bioaccumulation	readily metabolised and will not bioaccumulate
Biodegradation	biodegrades rapidly in the presence of oxygen; 84% in 14 days & 83% in 28 days
Abiotic Degradation	reacts with atmospheric hydroxyl (OH) radicals; estimated ½-life in air is 27 hours
Mobility in soil, water	water soluble; moves readily through soil & the water column
Aquatic Toxicity	
LC₅₀ (Fish, 96hr)	505 & 545mg/litre (Pimephelas promelas), 600mg/litre (Oncorhynchus mykiss); >179mg/litre, (Danio rerio),
LC₅₀ (Crustacea, 48hr)	200mg/litre (Daphnia magna) ¹ , 1230mg/litre (Artemia salina)
EC₅₀ (Algae)	980mg/litre (Scenedesmus subspicatus – 48hr), 1000mg/litre (Chlorococcalus sp)
LC₅₀ (Microorganisms)	80mg/litre (Photobacterium phosphoreum), 275mg/litre (Pseudomonas putida)

13. DISPOSAL

Waste Disposal

Do not flush to sewer, recycle solvent if possible, local regulations may permit disposal in sanitary landfill, may be incinerated in approved facility after mixing with a suitable flammable waste

Containers

Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.


Pails must be vented and thoroughly dried prior to crushing and recycling.

IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs).

Steel containers must be inspected, pressure tested & recertified every 5 years.

***Never cut, drill, weld or grind on or near this container,
even if empty***

14. TRANSPORT INFORMATION

Canada TDG	UN / PIN #	1245	
AND	Shipping Name	Methyl Isobutyl Ketone	
U.S.A. 49 CFR	Class & Packing Group	3, II	

Marine Pollutant	Not a marine pollutant
ERAP Required	No
Reportable Quantity (RQ – USA only)	5000 lbs (2270 kg)
Emergency Response Guide No.	127

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

15. REGULATORY INFORMATION

Canada DSL	On Inventory
U.S.A. TSCA	On Inventory
Europe EINECS	On Inventory

Canada Regulations:

CEPA - National Pollutant Release Inventory (NPRI)
Part 1A, Part 5.

U.S.A. Regulations:

Immediately Dangerous to Life or Health: 500 ppm

Allowable Tolerances: Residues of methyl isobutyl ketone are exempted from the requirement of a tolerance when used as a solvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Residues of methyl

isobutyl ketone are exempted from the requirement of a tolerance when used as a solvent, cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Residues of methyl isobutyl ketone are exempted from the requirement of a tolerance when used as a solvent, cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals.

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 100 ppm (410 mg/cu m).

NIOSH Recommendations: Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 50 ppm (205 mg/cu m).

Recommended Exposure Limit: 15 Min Short-Term Exposure Limit: 75 ppm (300 mg/cu m).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 50 ppm; 15 min Short Term Exposure Limit (STEL): 75 ppm. Biological Exposure Index (BEI): Determinant: methyl isobutyl ketone in urine; Sampling Time: end of shift; BEI: 2 mg/L. 2008 Notice of Intended Changes: These substances, with their corresponding values and notations, comprise those for which (1) a limit is proposed for the first time, (2) a change in the Adopted value is proposed, (3) retention as an NIC is proposed, or (4) withdrawal of the Documentation and adopted TLV is proposed. In each case, the proposals should be considered trial values during the period they are on the NIC. These proposals were ratified by the ACGIH Board of Directors and will remain on the NIC for approximately one year following this ratification. If the Committee neither finds nor receives any substantive data that changes its scientific opinion regarding an NIC TLV, the Committee may then approve its recommendation to the ACGIH Board of Directors for adoption. If the Committee finds or receives substantive data that change its scientific opinion regarding an NIC TLV, the Committee may change its recommendation to the ACGIH Board of Directors for the matter to be either retained on or withdrawn from the NIC. Substance: Methyl isobutyl ketone; Time Weighted Avg (TWA): 30 ppm; Short Term Exposure Limit (STEL): 75 ppm; A3: Confirmed animal carcinogen with unknown relevance to humans; Molecular Weight: 100.16; TLV Basis-Critical Effect(s): CNS impairment; irritation; dizziness; nausea; headache.

Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Methyl isobutyl ketone is produced, as an intermediate or final product, by process units covered under this subpart. Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Methyl isobutyl ketone is included on this list.

State Drinking Water Guidelines: California 120 ug/l Florida 350 ug/l Massachusetts 350 ug/l Minnesota 300 ug/l New Hampshire 2,000 ug/L Wisconsin 500 ug/l

CERCLA Reportable Quantities: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The toll free number of the NRC is (800) 424-8802. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV. D.3.b).

TSCA Requirements: Pursuant to section 8(d) of TSCA, EPA promulgated a model Health and Safety Data Reporting Rule.

The section 8(d) model rule requires manufacturers, importers, and processors of listed chemical substances and mixtures to submit to EPA copies and lists of unpublished health and safety studies. Methyl isobutyl ketone is included on this list. Effective date 10/4/82; Sunset date 10/4/92. A testing consent order is in effect for methyl isobutyl ketone for health effects testing. FR citation: 1/23/95.

RCRA Requirements: As stipulated in 40 CFR 261.33, when methyl isobutyl ketone, as a commercial chemical product or manufacturing chemical intermediate or an off-specification commercial chemical product or a manufacturing chemical intermediate, becomes a waste, it must be managed according to Federal and/or State hazardous waste regulations. Also defined as a hazardous waste is any residue, contaminated soil, water, or other debris resulting from the cleanup of a spill, into water or on dry land, of this waste. Generators of small quantities of this waste may qualify for partial exclusion from hazardous waste regulations (40 CFR 261.5). When methyl isobutyl ketone is a spent solvent, it is classified as a hazardous waste from a nonspecific source, as stated in 40 CFR 261.31, and must be managed according to State and/or Federal hazardous waste regulations.

FIFRA Requirements: Residues of methyl isobutyl ketone are exempted from the requirement of a tolerance when used as a solvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Residues of methyl isobutyl ketone are exempted from the requirement of a tolerance when used as a solvent, cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Residues of methyl isobutyl ketone are exempted from the requirement of a tolerance when used as a solvent, cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals.

FDA Requirements: Methyl isobutyl ketone is a food additive permitted for direct addition to food for human consumption as a synthetic flavoring substance and adjuvant in accordance with the following conditions: a) they are used in the minimum quantity required to produce their intended effect, and otherwise in accordance with all the principles of good manufacturing practice, and 2) they consist of one or more of the following, used alone or in

combination with flavoring substances and adjuvants generally recognized as safe in food, prior-sanctioned for such use, or regulated by an appropriate section in this part. Methyl isobutyl ketone is an indirect food additive for use only as a component of adhesives.

SARA 304: Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302: Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards: Fire Hazard

Acute Health Hazard

SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:methyl isobutyl ketone, CAS # 108-10-1

US State Regulations

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with The applicable state(s):

Pennsylvania - Listed

New York - Listed

New Jersey - Listed

Illinois - Listed

Massachusetts - Listed

Rhode Island - Listed

California Proposition 65 - WARNING: This product contains the following chemicals that are known to the State of California to cause cancer, birth defects or other reproductive harm.

International Regulations

International Inventories

Listed on the chemical inventories of the following countries or qualifies for an exemption:

Australia (AICS)

China (IECSC)

Japan (ENCS)

Korea (KECI)

New Zealand (NZIoC)

Philippines (PICCS)

Taiwan (TCSCA)

16. OTHER INFORMATION

NFPA RATING	Health 1	Flammability 3	Instability 0
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Prepared for Megaloid Laboratories **by** Rob Cangiano
Preparation Date: December 2003
Revision Dates: October 2006, October 2009, October 2012, April 2014, September 2018, October 2019

Key to Abbreviations	<p>ACGIH® = American Conference of Governmental Industrial Hygienists AIHA® = AIHA® Guideline Foundation HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration RTECS® = Registry of Toxic Effects of Chemical Substances</p>
References	<p>CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault</p>

	Systemes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).
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