




## Safety Data Sheet for Methyl Isobutyl Ketone

### I. Identification

Chemicals name: Methyl Isobutyl Ketone
Other Information: -
Relevant identified uses of the substance or mixture and uses advised against:  Solvents for paints, varnishes, nitrocellulose lacquers; manufacture of Methyl n-amyl ketone; Extraction process (including the extraction of uranium from decomposition products); organic synthesis; specially denatured alcohol.
Information on Producer/Supplier Name, Addresses, Phone: Linyuan Factory, LCY Chemical Corp / NO.11, Shihhua 3 <sup>rd</sup> Rd., Linyuan District, Kaohsiung City, Taiwan (R.O.C )
Emergency Phone / Fax: (07) 6419966-137 / (07) 6410537

### II. Hazard Identification:

Hazard Category: Class 2 flammable liquids, Class 4 acute toxic substance (inhalation), Class 3 skin corrosion/irritation substance, Class 2 severe injury/eye irritation substance
Labeled Contents:    Symbols:           Flames, Exclamation Point, Health hazard Warning:           Danger Hazard Warning Information: Highly flammable gas and vapor Harmful if inhaled Causes slight skin irritation Causes eye irritation Hazard Prevention Measures: Place the container in a well-ventilated area. Keep away from inflammables. – Smoking prohibited. For contact with eyes, wash with large amount of water and then seek medical help. Prevent static electricity build-up
Other Hazards: -

### III. COMPOSITION OF MIXTURE

Single



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English Name: Methyl Isobutyl Ketone
Synonyms: 4-methyl-2-pentanone, Hexone, 4-Methylpentan-2-One, 4-Methyl-2-Pentanone, MIBK
Chemical Abstracts Number (CAS No.): 108-10-1
Percentage for Chemical Ingredient (%): 98.5~100

### IV. First Aid Measures:

#### Emergency and First Aid Procedures:

Inhalation:  1. Move the patient immediately to an area with plenty of fresh air. 2. If breathing stops, apply artificial respiration or CPR. 3. Seek medical attention immediately.
Skin Contact:  1. Immediately wash with large amount of water for more than 10 minutes. 2. If irritation persists, seek medical attention immediately. 3. Contaminated clothing must be washed thoroughly before disposal.
Eye Contact:  1. Immediately lift eyelids, wash with warm water for more than 20 minutes. 2. Seek medical attention immediately.
Ingestion:  1. If the patient is losing consciousness, is unconscious or in spasm, do not give anything orally. 2. Do not induce vomiting. 3. Let the patient drink about 240-300ml of water to dilute the substances in the stomach. 4. Seek medical attention.
Major Disease and Harm Effect: Liquid may cause pain, swelling and tears. Also suppresses the nervous system.
First-Aid Personal Protection: Must wear Class C protective gear and perform emergency rescue in safe area.
Prompt to Doctor: If ingested, gastric lavage and active carbon should be administered.

### V. Fire Fighting Measure:

Suitable Extinguishing Media: Chemical powder, carbon dioxide, water fog, alcohol-resistant foam
Special Exposure Hazards:  1. Vapor is heavier than air and may travel to far places and flashback from ignition sources. 2. Fire site may produce poisonous gases. 3. Container may crack violently when heated.
Special Extinguishing Procedure:  1. If MIBK is exposed to oxidizer or heated, there is an extreme danger of fire. 2. Evacuate and extinguish the fire from a safe distance or protected area. 3. Position upwind to avoid hazardous vapor and toxic solvent. 4. Any spill should be stopped before extinguishing the fire. If the spill cannot be stopped and there is no immediate danger in the surrounding area, allow it to burn away. If the spill is not stopped before extinguishing the fire, the vapor and the air will form an explosive mixture and ignite afterwards. 5. Isolate the unignited substances and protect all personnel. 6. Remove the containers from the fire site under safe conditions. 7. Use water fog to



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cool the tanks and containers in the fire site. 8. Using water fog to extinguish fire may be ineffective unless executed by fire fighters trained for extinguishing flammable liquids. 9. If the spill is not burning, spray water fog to disperse the vapor and protect the personnel attempting to contain the spill. 10. Using spout to extinguish fire is useless. 11. For large fires in a big area, use unmanned water mist stand or the automatic water fire monitor. 12. Evacuate from the fire site as fast as possible and allow the fire to burn out. 13. Stay far away from the storage tanks. 14. Evacuate immediately if the safety valve alarm is on or changes color due to the fire. 15. Personnel not wearing special protection gears will not be allowed to enter. 16. Water fog is normally not used to extinguish fire but may be used to cool fire-exposed containers.

Special Protection Equipment: Fire fighters must wear air respirators, protective gloves, and fire fighting coats.

### VI. Accidental Release Measures:

#### Personal Protection:

1. Before the polluted area is cleaned up completely, access to the area should be restricted.
2. Make sure the cleaning work is performed by trained personnel.
3. The personnel should wear appropriate personal protective equipment.

#### Environmental Protection:

1. The air in the area should be well ventilated.
2. All flammable sources should be extinguished or eliminated.
3. Report the accident to the safety, health, and environmental protection authorities of the government.
4. Do not let the spill get into sewers or closed spaces.

#### Methods for Cleaning Up:

1. Do not come in contact with the released chemical.
2. Stop or reduce the spill under safe conditions if possible.
3. Use soil, sand or similar stable non-combustible substances that will not react with the spill to surround the spill.
4. For small spills, absorb using an absorbent that will not react with the spill. Contaminated absorbent is as dangerous as the spill and must be kept in properly sealed and labeled containers. Use water to wash and clean the spill area.
5. For large spills, contact the fire department, emergency rescue units and supplier for assistance.

### VII. Handling and Storage:

#### Handling:

1. Use restricted amount in specified areas.
2. Containers must be kept tightly sealed, even when not in use.

#### Storage:

1. Store in cool, dry and well-ventilated locations.
2. Keep heat sources and sparks from the storage area. Fans must also be fireproof.

### VIII. Exposure Control / Personal Protection:

Engineering Control: 1. Partial exhaust devices.

Control Factor



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TWA	STEL	CEILING	BEIs
50 ppm	75 ppm	-	<b>2mg/L</b> (Methyl isobutyl ketone in urine)

### Personal Protection Equipment:

#### Respiratory Protection:

- Below 500ppm: 1. Chemical filter cartridge type breathing apparatus with organic vapor filter cartridge, supplied air type breathing apparatus or air respirator (self-contained breathing apparatus)
- Unknown concentration: 1. Positive-pressure self-contained breathing apparatus, positive-pressure full air-supply respiratory apparatus with positive-pressure self-contained respiratory apparatus
- Escape: 1. (a) Full front and back gas mask with air purifying and organic vapor absorption function. (b) Any type of respirator for escaping.

#### Hand Protection:

1. Impermeable gloves made from Responder, Teflon, 4H and Tychem 10000 are preferable; however, prolonged use is not recommended. Wash properly and dry after use.

#### Eye Protection:

1. Do not wear contact lens when using safety goggles or face masks.

#### Skin & Body Protection:

1. Wear one-piece protective work clothing, work boots.

### Hygiene Procedures:

- Polluted clothes should be removed as soon as the work is completed. The clothes should be worn or discarded only after being washed. The washing staff should be informed of the harmful effects of the pollution.
- Eating, drinking, and smoking are strictly prohibited in the work area.
- Wash hands thoroughly after handling the substance.
- Keep the work area clean.

## IX. Physical and Chemical Properties / Characteristics:

Appearance: Clear, colorless liquid with camphor odor	Odor: Thick sweet odor
Odor threshold: 0.10-7.8ppm (detected), 0.27-16ppm (sensed)	Melting point: -85°C
pH value: -	Boiling Point / Boiling Range: 116.2°C
Flammability (solid, gas): -	Flash Point: 13 °C
Decomposition Temperature: -	Test Method:
Spontaneous Temperature: 448 °C	Exposure Limits: 1.2% ~ 8.0%
Vapor Pressure: 6 mmHg @20°C	Vapor Density: 3.45
Specific Gravity: 0.8017(water=1)	Solubility in Water: 1.6-2.0g/100ml (water)
Log Kow: 1.31	Percent volatile:



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### X. Stability and Reactivity:

Stability: Stable under ordinary conditions. May form peroxides in heated air.
Special Conditions of Hazardous Reaction: 1. Oxidizers (such as peroxides, nitrates and perchlorates), reducing agent and potassium t-butoxide will induce violent reaction.
Conditions to Avoid: Fire, sparks, static electricity, heat, ignition sources
Incompatibility: Oxidizers Oxidizers (such as peroxides, nitrates and perchlorates), reducing agent and potassium t-butoxide
Hazardous Decomposition Products: -

### XI. Toxicological Information

Exposure route: skin contact, inhalation, ingestion, eye contact
Symptoms: Irritation, nausea, vomiting, lack of appetite, dysentery, headache, sleep.
Acute Toxicity: Skin: 1. Direct contact may cause slight irritation. Inhalation: 1. Irritates nose and pharynx, induces nausea, vomiting, diarrhea, headache, dizziness, and lack of appetite. Ingestion: 1. May induce stomachache, nausea, vomiting, diarrhea and suppresses the nervous system. Eye: 1. Vapor may irritate eyes and induce burning sensation. Liquid may cause pain, swelling and tears. LD50 (Test animal, absorption route): 2080 mg/kg (rat, ingestion) LC50 (Test animal, absorption route): -500mg/24H(rabbit, skin): caused slight irritation
Chronic: 1. Prolonged skin contact may cause dryness and peeling. 2. Long-term daily inhalation for 20 to 30 minutes at 500ppm concentration will induce weakness, lack of appetite, burning eyes, stomachache, nausea, vomiting, sore throat, anemia, swollen liver and colitis. 300ppm/6H (6-15 days pregnant rat, inhalation) caused poisoning of the embryo.

### XII. Ecological Information:

Eco-toxicity: LC50 (Fish) : 460mg/l/24H EC50 (aquatic invertebrates): - Bio-concentration Factor (BCF): 2-5
Durability and Degradability: 1. The industrial chemistry BOD is 2.06 while the COD is 2.16. Theoretically, 0.5 day is needed for 1.8% decomposition while 5 days are needed for 12%. 2. Released in water, this material may evaporate, decompose by photolysis, bioaccumulation inside organic organisms in the water, or adsorb to dirt and settle.



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3. When released to air, this material is expected to be readily decomposed by photolysis or react with free hydroxyl radicals.

Half-life (air): 4.6 ~ 468 hrs

Half-life (water surface): 24 ~ 336 hrs

Half-life (underground water): 48 ~ 168 hrs

Half-life (soil): 45.5 ~ 168024 hrs

Biological Accumulation: This material will transform into other substances and not accumulate inside the body.

Fluidity in the Soil: When release to the soil, this material will decompose through photolysis, evaporate and decompose by decomposition of aerobic organisms.

Other adverse effects: -

### XIII. Disposal Information:

Disposal Information:

1. Dispose according to current laws and regulations.
2. For small amounts, absorb using paper napkin and burn in approved solvent incinerator.
3. For large amounts, collect and then dispose using specified incinerating method.

### XIV. Transport Information:

The United Nations Number (Un-No): 1245

UN Transport Name: Methyl Isobutyl Ketone

Transport Hazard Classification: Class 3 Flammable Liquids

Packaging Category: II

Marine Pollutant (Yes/No): No

Special Transport Way and Note: -

### XV. Regulation Information:

Apply Regulation:

1. Enforcement Rules of the Occupational Safety and Health Act
2. Regulations of Hazard Communication on Dangerous and Harmful Material
3. Toxic Chemical Substances Control Act
4. Standards of Tolerable Hazardous Substance Concentration in the Air of Labor Working Environment
5. Traffic Safety Regulations
6. Public Hazardous Materials and Flammable Pressurized Gases Establishment Standards and Safety Control Regulations

### XVI. Other Information:



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Reference	<ol style="list-style-type: none"><li>1. “《Chinese Toxic Substances Registry》, Taiwan-America Collaboration Project”, Department of Health, Executive Yuan, March, 1997, R.O.C.</li><li>2. Chinese Toxicology Database, Department of Health, Executive Yuan</li><li>3. Disaster Prevention and Response Handbook for Toxic Chemical Substances, Department of Health, Executive Yuan, November, 2000.</li><li>4. MSDS CD data, Center for Industrial Safety and Health Technology of ITRI.</li><li>5. Handbook of Toxic and Hazardous Chemicals and Carcinogens</li><li>6. Hazardous Substances Database (HSDB), ChemKnowledge CD, Volume 65, 2005</li><li>7. ChemWatch Database, 2005-1</li></ol>	
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Note	This SDS version is intended for reference only.	