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## 1. IDENTIFICATION

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**Product name:** Methyl Isobutyl Carbinol

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Chemical additive. Chemical intermediate. Frothing agent.

**COMPANY IDENTIFICATION**

China Amines Co., Ltd  
UNIT 1021, BEVERLEY COMMERCIAL CENTRE, 87-105 CHATHAM  
ROAD SOUTH, TSIM SHA TSUI, KOWLOON HONG KONG

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** +86 18938922889

**Local Emergency Contact:** +86 18938922889

**Emergency Response:** +86 18938922889

**Web Address:** [www.chinaamines.com](http://www.chinaamines.com)

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids - Category 3

Eye irritation - Category 2A

Specific target organ toxicity - single exposure - Category 3

**Label elements**

**Hazard pictograms**



Signal word: **WARNING!**

**Hazards**

Flammable liquid and vapour.  
Causes serious eye irritation.  
May cause respiratory irritation.

**Precautionary statements****Prevention**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Wash skin thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/ eye protection/ face protection.

**Response**

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

**Storage**

Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Synonyms:** Methyl isobutyl carbinol

This product is a substance.

<b>Component</b>	<b>CASRN</b>	<b>Concentration</b>
Methyl Isobutyl Carbinol	108-11-2	> 98.0 %
2,6-Dimethyl-4-heptanone	108-83-8	< 2.0 %
Methyl isobutyl ketone	108-10-1	< 1.0 %

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

#### Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Repeated excessive exposure may aggravate preexisting lung disease. Skin contact may aggravate preexisting dermatitis.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** No data available

#### Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Eliminate ignition sources. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. Isolate area. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Removal of ignition sources:** Keep away from sources of ignition.

**Dust Control:** Not applicable

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Small spills: Absorb with materials such as: Sand. Vermiculite. Large spills: Contain spilled material if possible. Collect in suitable and properly labeled containers. Pump with explosion-proof equipment. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid breathing vapor. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Electrically ground and bond all equipment. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame.

**Storage stability**

**Steel drums.** 24 Month

**Bulk** 12 Month

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Methyl Isobutyl Carbinol	ACGIH	TWA	25 ppm
	ACGIH	STEL	40 ppm
	ACGIH	TWA	SKIN
	OSHA Z-1	TWA	100 mg/m3 25 ppm
	ACGIH	STEL	SKIN
	OSHA Z-1	TWA	SKIN
2,6-Dimethyl-4-heptanone	Dow IHG	TWA	25 ppm
	Dow IHG	STEL	35 ppm
	ACGIH	TWA	25 ppm
	OSHA Z-1	TWA	290 mg/m3 50 ppm
Methyl isobutyl ketone	ACGIH	TWA	20 ppm
	ACGIH	STEL	75 ppm
	OSHA Z-1	TWA	410 mg/m3 100 ppm

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methyl isobutyl ketone	108-10-1	methyl isobutyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	1 mg/l	ACGIH BEI

### Exposure controls

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

#### Skin protection

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Liquid.
Color	Colorless
Odor	Mild
Odor Threshold	No test data available
pH	No test data available
Melting point/range	Not applicable to liquids
Freezing point	-90 °C ( -130 °F) <i>Literature</i>
Boiling point (760 mmHg)	132 °C ( 270 °F) <i>Literature</i>
Flash point	40.56 °C ( 105.01 °F) <i>open cup</i>
Evaporation Rate (Butyl Acetate = 1)	0.43 <i>Literature</i>
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	1.0 % vol <i>Literature</i>
Upper explosion limit	5.5 % vol <i>Literature</i>
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	3.5 <i>Literature</i>
Relative Density (water = 1)	0.807 at 20 °C (68 °F) / 20 °C <i>Literature</i>
Water solubility	1.7 % at 20 °C (68 °F) <i>Literature</i>
Partition coefficient: n-octanol/water	log Pow: 1.57 <i>estimated</i>
Auto-ignition temperature	335 °C (635 °F) at 1,013 hPa <i>Literature</i>
Decomposition temperature	No test data available
Dynamic Viscosity	5.2 mPa.s at 20 °C (68 °F) <i>Literature</i>
Kinematic Viscosity	6.4 mm <sup>2</sup> /s at 20 °C (68 °F) <i>Literature</i>
Explosive properties	Not explosive
Oxidizing properties	No Oxidizing
Molecular weight	102.17 g/mol
Molecular formula	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub> CH(OH)CH <sub>3</sub>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** Thermally stable at recommended temperatures and pressures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose.

**Incompatible materials:** Avoid contact with: Acid chlorides. Acids. Oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials.

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## **11. TOXICOLOGICAL INFORMATION**

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

LD50, Rat, 2,590 mg/kg OECD 401 or equivalent

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit, 2,870 mg/kg OECD 402 or equivalent

#### **Acute inhalation toxicity**

Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, male and female, 4 Hour, vapour, > 16 mg/l

### **Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.  
May cause drying and flaking of the skin.

### **Serious eye damage/eye irritation**

May cause moderate eye irritation.  
May cause moderate corneal injury.  
Vapor may cause eye irritation experienced as mild discomfort and redness.

### **Sensitization**

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:  
No relevant data found.

### **Specific Target Organ Systemic Toxicity (Single Exposure)**

May cause respiratory irritation.  
Route of Exposure: Inhalation  
Target Organs: Respiratory Tract

### **Specific Target Organ Systemic Toxicity (Repeated Exposure)**

In animals, effects have been reported on the following organs:  
Kidney.

### **Carcinogenicity**

For the minor component(s) Has caused cancer in some laboratory animals. However, the relevance of this to humans is unknown.

**Teratogenicity**

For similar material(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive toxicity**

For similar material(s): In animal studies, did not interfere with reproduction.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

May be harmful if swallowed and enters airways.

**Carcinogenicity****Component****Methyl isobutyl ketone****List**

IARC

ACGIH

**Classification**

Group 2B: Possibly carcinogenic to humans

A3: Confirmed animal carcinogen with unknown relevance to humans.

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## 12. ECOLOGICAL INFORMATION

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity****Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 359 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), semi-static test, 48 Hour, 337 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

EbC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Biomass, 147 mg/l, OECD Test Guideline 201 or Equivalent

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate inhibition, 334 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate, 75.5 mg/l

**Toxicity to bacteria**

EC50, Bacteria, static test, 3 Hour, Respiration rates., > 100 mg/l, activated sludge test (OECD 209)

**Persistence and degradability**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 85 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F or Equivalent

**Theoretical Oxygen Demand:** 2.82 mg/mg



Chemical Oxygen Demand: 2.43 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	38 - 50 %
10 d	67 - 72 %
20 d	67 - 94 %

**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 10 Hour**Method:** Estimated.**Bioaccumulative potential****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 1.57 estimated**Mobility in soil**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 13 Estimated.

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## 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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## 14. TRANSPORT INFORMATION

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**DO T**

<b>Proper shipping name</b>	Methyl isobutyl carbinol
<b>UN number</b>	UN 2053
<b>Class</b>	3
<b>Packing group</b>	III

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	METHYL ISOBUTYL CARBINOL
<b>UN number</b>	UN 2053
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	No
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Methyl isobutyl carbinol
<b>UN number</b>	UN 2053
<b>Class</b>	3

<b>Packing group</b>	III
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This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids)

Serious eye damage or eye irritation

Specific target organ toxicity (single or repeated exposure)

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Methyl isobutyl ketone	108-10-1	5000 lbs RQ
Methyl isobutyl ketone	108-10-1	100 lbs RQ (F003)
Methyl isobutyl ketone	108-10-1	5000 lbs RQ
Methyl isobutyl ketone	108-10-1	100 lbs RQ (F003)

### Pennsylvania Worker and Community Right-To-Know Act:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Components	CASRN
Methyl Isobutyl Carbinol	108-11-2
2,6-Dimethyl-4-heptanone	108-83-8

### California Prop. 65

WARNING: This product can expose you to chemicals including Methyl isobutyl ketone, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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## 16. OTHER INFORMATION

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**Hazard Rating System****NFPA**

Health	Flammability	Instability
1	2	0

**Revision**

Identification Number: 186466 / A001 / Issue Date: 06/26/2018 / Version: 9.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Time weighted average

**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations;

UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

ALTIVIA urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer- specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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