

# **MSDS – MATERIAL SAFETY DATA SHEET**

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## **METHYL ACETATE**

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### **1. Product Identification**

**Synonyms:** Acetic acid, methyl ester

**CAS No.:** 79-20-9

**Molecular Weight:** 74

**Chemical Formula:** CH<sub>3</sub>COOCH<sub>3</sub>

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### **2. Composition/Information on Ingredients**

Ingredient	CAS No	Percent	Hazardous
----- Methyl Acetate	----- 79-20-9	----- 90 - 100%	----- Yes

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### **3. Hazards Identification**

**Emergency Overview**

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**DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. HARMFUL OR FATAL IF SWALLOWED. AFFECTS CENTRAL NERVOUS SYSTEM.**

## SAFETY DATA Ratings (Provided here for your convenience)

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Health Rating: 2 - Moderate (Life)

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;  
PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

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### Potential Health Effects

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#### **Inhalation:**

Inhalation of vapors causes irritation to the eyes, nose, and respiratory tract. Vapors have a narcotic effect, producing symptoms of dizziness, depression, shortness of breath, and irregular heartbeat. High concentrations can cause CNS depression characterized by eye inflammation, nervous irritation, chest tightness, headache, dizziness, drowsiness, difficulty breathing, palpitation, and conjunctivitis.

#### **Ingestion:**

May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation.

#### **Skin Contact:**

Causes loss of natural oils and skin irritation.

#### **Eye Contact:**

Vapors can cause irritation with redness, tearing, and pain. A severe irritant to the eyes from liquid splashes.

#### **Chronic Exposure:**

Repeated contact with the liquid may cause dryness, cracking, and skin irritation. Causes eye irritation. Affects the central nervous system. Chronic effects may be similar to those from methanol exposure because methyl acetate can be hydrolyzed yielding methanol and acetic acid. Optic nerve damage is the predominant hazard.

#### **Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders, eye problems, impaired respiratory function or central nervous system conditions may be more susceptible to the effects of this substance.

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## 4. First Aid Measures

#### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### **Ingestion:**

Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

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

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## 5. Fire Fighting Measures

**Fire:**

Flash point: -10C (14F) CC

Autoignition temperature: 454C (849F)

Flammable limits in air % by volume:

lel: 3.1; uel: 16

Extremely Flammable.

Dangerous fire hazard when exposed to heat, flame, or oxidizers.

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. Sensitive to static discharge.

**Fire Extinguishing Media:**

Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back. This highly flammable liquid must be kept from sparks, open flame, hot surfaces, and all sources of heat and ignition.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

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## 7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

- OSHA Permissible Exposure Limit (PEL):

200 ppm (TWA)

- ACGIH Threshold Limit Value (TLV):

200 ppm (TWA) 250 ppm (STEL)

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half-face organic vapor respirator may be worn for up to ten times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**

Colorless liquid.

**Odor:**

Pleasant, fruity odor.

**Solubility:**

32g/100g water @ 20C (68F).

**Specific Gravity:**

0.9342

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

58C (136F)

**Melting Point:**

-99C (-146F)

**Vapor Density (Air=1):**

2.6

**Vapor Pressure (mm Hg):**

170 @ 20C (68F)

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable at room temperature in sealed containers.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Nitrates, strong oxidizers, alkalis, and acids. Reacts slowly with water to form acetic acid and methanol.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

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## 11. Toxicological Information

Oral rabbit LD50: > 5 gm/kg. Skin rabbit LD50: > 5 gm/kg. Irritation data : Skin rabbit (Standard Draize) 500 mg/24H, mild. Eye rabbit (Standard Draize) 100 mg/24H, moderate.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Methyl Acetate (79-20-9)	No	No	None

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## 12. Ecological Information

### Environmental Fate:

When released into the soil, this material may leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material is expected to have a half-life of greater than 30 days.

### Environmental Toxicity:

This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/l.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** METHYL ACETATE  
**Hazard Class:** 3

UN/NA: UN1231  
Packing Group: II  
Information reported for product/size: 2.5L

**International (Water, I.M.O.)**

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**Proper Shipping Name:** METHYL ACETATE  
**Hazard Class:** 3  
UN/NA: UN1231  
Packing Group: II  
Information reported for product/size: 2.5L

**International (Air, I.C.A.O.)**

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**Proper Shipping Name:** METHYL ACETATE  
**Hazard Class:** 3  
UN/NA: UN1231  
Packing Group: II  
Information reported for product/size: 2.5L

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----  
Ingredient TSCA EC Japan Australia  
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Methyl Acetate (79-20-9) Yes Yes Yes Yes

-----\Chemical Inventory Status - Part 2\-----  
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Ingredient Korea DSL NDSL Phil.  
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Methyl Acetate (79-20-9) Yes Yes No Yes

-----\Federal, State & International Regulations - Part 1\-----  
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Ingredient -SARA 302- -SARA 313-----  
RQ TPQ List Chemical Catg.  
-----  
Methyl Acetate (79-20-9) No No No No

-----\Federal, State & International Regulations - Part 2\-----  
-----  
Ingredient -RCRA- -TSCA-  
CERCLA 261.33 8(d)  
-----  
Methyl Acetate (79-20-9) No No Yes

Chemical Weapons Convention: No TSCA 12(b): Yes CDTA: No  
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No  
Reactivity: No (Pure / Liquid)

**Australian Hazchem Code:** 2[S]E

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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## 16. Other Information

**NFPA Ratings:** Health: **1** Flammability: **3** Reactivity: **0**

**Label Hazard Warning:**

DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. HARMFUL OR FATAL IF SWALLOWED. AFFECTS CENTRAL NERVOUS SYSTEM.

**Label Precautions:**

Keep away from heat, sparks and flame.  
Keep container closed.  
Avoid breathing vapor.  
Use only with adequate ventilation.  
Avoid contact with eyes, skin and clothing.  
Wash thoroughly after handling.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:** No Changes.

**Disclaimer:**

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