

# Material Safety Data Sheet

## (Methyl Formate)

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### Methyl Formate

## 1. PRODUCT AND COMPANY IDENTIFICATION

#### Material Identification

Corporate MSDS Number:	Methyl formate	CAS Number:	107-31-3
Product Name	Methyl formate		
Chemical Formula	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>		
Chemical Name	Methyl formate		
Product Use	Foam blowing agent		

#### Company Identification

**MANUFACTURER/DISTRIBUTOR:** Cosutin Industrial CO., Limited  
Add: Unit B, 10/F Lee May Building 788-790 Nathan Road, Mongkok, Kowloon, H.K.  
Tel.: +852 21395855 Fax: +852 81673777  
**PHONE NUMBERS Product Information:** +86 136 31481545  
**Transport Emergency:** +86 136 31481545  
**Medical Emergency:** +86 136 31481545

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS No.	Typical Wt. %
Methyl formate	107-31-3	97%+

## 3. HAZARDS IDENTIFICATION

#### Emergency Overview

DANGER!

- Extremely flammable liquid.
- Causes respiratory tract and eye irritation.
- Harmful if inhaled.
- May cause skin irritation.
- May be harmful if swallowed.

- Vapor is heavier than air and can travel considerable distance to a source of ignition and flashback.

**Product Description**

Appearance: Clear, colorless mobile liquid.

Odor: Strong pleasant, fruity odor.

**POTENTIAL HEALTH EFFECTS**

Routes of exposure: Skin, eyes, inhalation, ingestion.

**Immediate Effects:**

**Skin:** May cause skin irritation. Prolonged and/or repeated skin contact with Methanol soaked material has produced toxic effects including vision effects and death. Prolonged or repeated contact may dry skin and cause irritation. Harmful if absorbed through skin. Symptoms of exposure may include: Central nervous system depression with headache, stupor, uncoordinated or strange behavior or unconsciousness. Drying cracking or inflammation of skin.

**Eyes:** Causes eye irritation. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision.

**Inhalation:** Causes respiratory tract irritation. Harmful if inhaled. Symptoms of exposure may include: Central nervous system depression with nausea, dizziness, headache, stupor, uncoordinated or strange behavior or unconsciousness. Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty. Accumulation of fluid in the lungs (pulmonary edema); symptoms can be delayed for several hours.

**Ingestion:** May be harmful if swallowed. Symptoms of exposure may include: Nausea, vomiting loss of appetite, gastrointestinal irritation and/or diarrhea. Inflammation of mouth, throat, esophagus and/or stomach. Central nervous system depression with nausea, headache and mental sluggishness.

**Reproductive:** May cause adverse reproductive effects based on animal data.

**Mutagenic:** Does not show mutagenic potential in Ames test.

Target Organ Effects: Overexposure (prolonged or repeated exposure) may cause:

- Central nervous system depression
- Injury to the eyes
- Irritation of the digestive tract
- Drying of the skin
- Respiratory tract damage

Medical Conditions which may be Aggravated by Exposure:

Significant exposure to this chemical may adversely affect people with acute or chronic disease of the:

- Respiratory Tract
- Skin
- Eyes
- Central nervous system
- Digestive tract

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## 4. FIRST AID MEASURES

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<b>Skin:</b>	Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
<b>Eyes:</b>	Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately.
<b>Inhalation:</b>	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
<b>Ingestion:</b>	Induce vomiting immediately, as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately. Call a physician.

**Note to physician:** Observe for latent pulmonary edema.

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## 5. FIRE FIGHTING MEASURES

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**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 449°C (840.2°F)

**Flash Points:** CLOSED CUP: -19°C (-2.2°F).

**Flammable Limits:** LOWER: 5% UPPER: 23%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

**Fire Hazards in Presence of Various Substances:** Flammable in presence of open flames and sparks, of heat.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:**

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

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## 7. HANDLING AND STORAGE

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**Handling:** Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before re-use. Destroy contaminated leather clothing.

This product may generate a static charge. Ground/bond equipment when transferring material to prevent static accumulation. Electrical equipment and circuits in all storage and handling must conform to requirements of National Electric Code (Article 500 and 501) for hazardous location.

Closed containers exposed to temperatures above 27° C (81° F) in transit or storage may develop excessive vapor pressure.

**Storage:** Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 100 STEL: 150 (ppm) TWA: 250 STEL: 368 (mg/m<sup>3</sup>) Consult local authorities for acceptable exposure limits.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Physical state and appearance:** Liquid.

**Odor:** Ethereal.

**Molecular Weight:** 60.05 g/mole

**pH (1% soln/water):** Not available.

**Melting Point:** -99.8°C (-147.6°F)

**Specific Gravity:** 0.975 (Water = 1)

**Vapor Density:** 2.07 (Air = 1)

**Odor Threshold:** 203.6 ppm

**Ionicity (in Water):** Not available.

**Solubility:** Easily soluble in cold water.

**Taste:** Not available.

**Color:** Colorless.

**Boiling Point:** 31.8°C (89.2°F)

**Critical Temperature:** Not available.

**Vapor Pressure:** 476 mm of Hg (@ 20°C)

**Volatility:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Dispersion Properties:** See solubility in water.

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## 10. STABILITY AND REACTIVITY

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**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

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## 11. TOXICOLOGICAL INFORMATION

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**Routes of Entry:** Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 1622 mg/kg [Rabbit].

**Chronic Effects on Humans:** The substance is toxic to the nervous system, upper respiratory tract.

**Other Toxic Effects on Humans:**

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

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## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

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### 13. DISPOSAL CONSIDERATIONS

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Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

EPA Hazardous Waste Code(s): D001

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### 14. TRANSPORTATION INFORMATION

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**DOT Classification:** Class 3: Flammable liquid

**Identification:** Methyl formate UN1243 PG: I

**Special Provisions for Transport:** Not available

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### 15. REGULATORY INFORMATION

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**Federal and State Regulations:**

Pennsylvania RTK: Methyl formate Florida: Methyl formate Minnesota: Methyl formate

Massachusetts RTK: Methyl formate

New Jersey: Methyl formate TSCA 8(b) inventory: Methyl formate

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):** CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

**DSCL (EEC):** R12- Extremely flammable. R38- Irritating to skin. R41- Risk of serious damage to eyes.

**HMIS (U.S.A.): Health Hazard: 2 Fire Hazard: 4 Reactivity: 0 Personal Protection: h**

**National Fire Protection Association (U.S.A.): Health: 2 Flammability: 4 Reactivity: 0**

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Wear appropriate respirator when ventilation is inadequate. Splash goggles.

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### 16. OTHER INFORMATION

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**Revision Information**

Revision Data	19 JUN 2012	Revision Number 3
Supersedes Revision Dated	16-JUN-2012	

**Key**

NE= Not Established	NA= Not Applicable
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**NOTE: For industrial use only.** The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. We makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid, or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of MSDS