

Material Safety Data Sheet (MSDS)

Ethyl Formate

CAS Number: 109-94-4

Prepared by: Triveni Chemicals

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Version: 1.0

SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

- **Product Name:** Ethyl Formate
- **Synonyms:** Formic acid ethyl ester
- **Recommended Use:** Laboratory chemicals, solvent, flavoring agent
- **Supplier:**
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SECTION 2: Hazards Identification

- **GHS Classification:**
 - Flammable liquid (Category 2), H225
 - Acute toxicity, Oral (Category 4), H302
 - Eye irritation (Category 2A), H319
 - Specific target organ toxicity — single exposure (Category 3), H335
- **Signal Word:** Danger
- **Hazard Statements:**
 - H225: Highly flammable liquid and vapor
 - H302: Harmful if swallowed
 - H319: Causes serious eye irritation
 - H335: May cause respiratory irritation
- **Precautionary Statements:**
 - P210: Keep away from heat/sparks/open flames/hot surfaces — no smoking
 - P261: Avoid breathing vapors
 - P264: Wash skin thoroughly after handling
 - P271: Use only outdoors or in a well-ventilated area
 - P280: Wear protective gloves/protective clothing/eye protection/face protection
 - P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
 - P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
 - P337+P313: If eye irritation persists: Get medical advice/attention

- P370+P378: In case of fire: Use dry chemical, CO₂, water spray, or alcohol-resistant foam
- P501: Dispose of contents/container in accordance with local/regional/national/international regulations

SECTION 3: Composition/Information on Ingredients

Component	CAS No.	Concentration
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Ethyl Formate	109-94-4	≥99%
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SECTION 4: First Aid Measures

- **Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
- **Skin Contact:** Remove contaminated clothing. Wash thoroughly with soap and water. Seek medical advice if irritation develops.
- **Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
- **Ingestion:** Rinse mouth with water. Do NOT induce vomiting. Seek immediate medical attention.

SECTION 5: Firefighting Measures

- **Suitable Extinguishing Media:** Water spray, alcohol-resistant foam, dry chemical, carbon dioxide (CO₂).
- **Specific Hazards:** Vapors may form explosive mixtures with air. Containers may rupture in a fire.
- **Protective Equipment:** Firefighters should wear self-contained breathing apparatus and full protective gear.

SECTION 6: Accidental Release Measures

- **Personal Precautions:** Ensure adequate ventilation. Remove all ignition sources. Wear appropriate personal protective equipment.
- **Environmental Precautions:** Prevent further spillage if safe to do so. Do not allow product to enter drains.
- **Methods for Cleaning Up:** Absorb with inert material (e.g., sand, vermiculite) and place in a chemical waste container. Dispose of according to local regulations.

SECTION 7: Handling and Storage

- **Handling:** Avoid contact with skin and eyes. Avoid inhalation of vapors or mist. Keep away from ignition sources. Provide adequate ventilation.

- **Storage:** Store in a cool, dry, well-ventilated place. Keep container tightly closed and away from heat and open flames.

SECTION 8: Exposure Controls/Personal Protection

- **Engineering Controls:** Provide adequate local exhaust ventilation.
- **Personal Protective Equipment:**
 - **Eye/Face Protection:** Safety goggles
 - **Skin Protection:** Protective gloves and protective clothing
 - **Respiratory Protection:** Use suitable respiratory equipment if ventilation is insufficient
 - **Hygiene Measures:** Wash hands and face after handling. Do not eat, drink, or smoke while working with this material.

SECTION 9: Physical and Chemical Properties

Property	Value
Appearance	Colorless liquid
Odor	Rum-like, pleasant odor
Density	~0.92 g/cm ³ at 20 °C
Melting Point	-83 °C

Property	Value
Boiling Point	54 °C
Flash Point	-20 °C (closed cup)
Solubility in Water	Miscible
Partition Coefficient (n-octanol/water)	1.5 at 25 °C
Autoignition Temperature	455 °C

SECTION 10: Stability and Reactivity

- **Chemical Stability:** Stable under recommended storage conditions.
- **Conditions to Avoid:** Heat, flames, sparks, static discharge.
- **Incompatible Materials:** Strong oxidizing agents, acids, bases.
- **Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, irritating fumes.

SECTION 11: Toxicological Information

- **Acute Toxicity:**
 - Oral LD₅₀ (Rat): 1700 mg/kg
- **Skin Corrosion/Irritation:** May cause mild skin irritation
- **Serious Eye Damage/Irritation:** Causes serious eye irritation

- **Respiratory or Skin Sensitization:** Not classified
- **Germ Cell Mutagenicity:** Not classified
- **Carcinogenicity:** Not classified
- **Reproductive Toxicity:** Not classified
- **Specific Target Organ Toxicity – Single Exposure:** May cause respiratory irritation
- **Specific Target Organ Toxicity – Repeated Exposure:** Not classified
- **Aspiration Hazard:** Not classified

SECTION 12: Ecological Information

- **Aquatic Toxicity:** Harmful to aquatic life
- **Persistence and Degradability:** Readily biodegradable
- **Bioaccumulative Potential:** Low
- **Mobility in Soil:** Expected to be highly mobile
- **Other Adverse Effects:** Avoid uncontrolled release into the environment

SECTION 13: Disposal Considerations

Dispose of contents/container in accordance with local, regional, national, or international regulations. Avoid release to the environment.

SECTION 14: Transport Information

- **UN Number:** UN1190
- **UN Proper Shipping Name:** Ethyl formate
- **Transport Hazard Class:** 3 (Flammable liquid)
- **Packing Group:** II
- **Environmental Hazards:** Not applicable
- **Special Precautions for User:** Keep away from ignition sources

SECTION 15: Regulatory Information

- **Safety, Health, and Environmental Regulations:**
 - Listed on TSCA (USA), EINECS/ELINCS (EU)
 - Not listed under REACH SVHC

SECTION 16: Other Information

Prepared By: Triveni Chemicals, Regulatory Affairs Department

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