

Section 1. Product and Company Identification

**Product Name** Ethyl Formate  
**CAS Number** 109-94-4

**Parchem - fine & specialty chemicals**  
**415 Huguenot Street**  
**New Rochelle, NY 10801**  
☎ (914) 654-6800 ☎ (914) 654-6899  
🌐 [parchem.com](http://parchem.com) ✉ [info@parchem.com](mailto:info@parchem.com)

EMERGENCY RESPONSE NUMBER  
CHEMTEL  
Toll Free US & Canada: 1 (800) 255-3924  
All other Origins: 1 (813) 248-0585  
Collect Calls Accepted

Section 2. Hazards Identification

**Classification of the substance or mixture**

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2): H225  
Acute toxicity, Oral (Category 4): H302  
Acute toxicity, Inhalation (Category 4): H332  
Eye irritation (Category 2A): H319  
Specific target organ toxicity - single exposure (Category 3), Respiratory system: H335

**GHS Label Elements**

**Pictograms:**



**Signal word:** DANGER

**Hazard and precautionary statements**

**Hazard statements**

H225: Highly flammable liquid and vapor  
H302 + H332: Harmful if swallowed or if inhaled  
H319: Causes serious eye irritation.  
H335: May cause respiratory irritation.

**Precautionary statements**

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233: Keep container tightly closed.  
P240: Ground/bond container and receiving equipment.  
P241: Use explosion-proof electrical/ ventilating/ lighting/ equipment  
P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.  
P261: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P264: Wash skin thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear protective gloves/ eye protection/ face protection.  
P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.  
P303 + P361 + P353: IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P312: 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.  
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 sand, dry chemical or alcohol-resistant foam for extinction.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.  
P501: Dispose of contents/ container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC) or not covered by GHS:** None

### Section 3. Composition / Information on Ingredients

<b>Common Name</b>	Ethyl Formate
<b>Synonym(s)</b>	Formic acid, ethyl ester
<b>Formula</b>	$C_3H_6O_2$
<b>CAS Number</b>	109-94-4

### Section 4. First Aid Measures

#### Description of first aid measures

**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**Inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**Skin contact:** Wash off with soap and plenty of water. Consult a physician.

**Eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Ingestion:** Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Most important symptoms and effects, both acute and delayed:** The most important known symptoms and effects are described in the labelling and/or in section 11.



**Indication of any immediate medical attention and special treatment needed:** No data available

Section 5. Firefighting Measures

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

**Special hazards arising from the substance or mixture:** Carbon oxides

**Advice for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Further information:** Use water spray to cool unopened containers

Section 6. Accidental Release Measures

**Personal precautions, protective equipment, and emergency procedures:** Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

**Reference to other sections:** For disposal see section 13

Section 7. Handling and Storage

**Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. For precautions see section 2.

**Conditions for safe storage, including any incompatibilities:** Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Moisture sensitive.

**Storage class (TRGS 510):** Flammable liquids

Section 8. Exposure Controls / Personal Protection

**Control parameters**

**Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Ethyl Formate	109-94-4	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation		
		TWA	100.000000 ppm 300.000000 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m <sup>3</sup> is approximate		
		STEL	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 300.000000 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits

**Exposure controls**

**Appropriate engineering controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face protection:** Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection:** Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Section 9. Physical and Chemical Properties

**Information on basic physical and chemical properties**

**Appearance:** Light yellow liquid

**Odor:** No data available

**Odor Threshold:** No data available

**pH:** No data available

**Melting point/freezing point:** Melting point/range: -80°C (-112°F) - lit.

**Initial boiling point and boiling range:** 52 - 54°C (126 - 129°F) - lit.

**Flash point:** -18.99°C (-2.18°F) - closed cup

**Evaporation rate:** No data available

**Flammability (solid, gas):** No data available

**Upper/lower flammability or explosive limits**

**Upper explosion limit:** 16% (V)

**Lower explosion limit:** 2.8% (V)

**Vapor pressure:** 1,045.0 hPa (783.8 mmHg) at 55°C (131°F), 261.2 hPa (195.9 mmHg) at 20°C (68°F)

**Vapor density:** 2.56 - (Air = 1.0)

**Relative density:** 0.921 g/cm<sup>3</sup> at 20°C (68°F)

**Water solubility:** No data available

**Partition coefficient (n-octanol/water):** No data available

**Auto-ignition temperature:** No data available

**Decomposition temperature:** No data available

**Viscosity:** No data available

**Explosive properties:** No data available

**Oxidizing properties:** No data available

**Other safety information**

**Relative vapor density:** 2.56 - (Air = 1.0)

Section 10. Stability and Reactivity

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions.

**Possibility of hazardous reactions:** Vapors may form explosive mixture with air.

**Conditions to avoid:** Heat, flames and sparks.

**Incompatible materials:** Bases, Oxidizing agents

**Hazardous decomposition products**

**Other decomposition products:** No data available

**In the event of fire:** see section 5

Section 11. Toxicological Information

**Information on toxicological effects**

**Acute toxicity**

**LD50 Oral - Rat:** 1,850 mg/kg

**Remarks:** Behavioral: Somnolence (general depressed activity). Lungs, Thorax, or Respiration: Dyspnea.

**LD50 Dermal - Rabbit:** > 18,420 mg/kg

**Skin corrosion/irritation**

**Skin:** Rabbit

**Result:** Mild skin irritation

**Serious eye damage/eye irritation:** No data available

**Respiratory or skin sensitization:** No data available

**Germ cell mutagenicity:** No data available

**Carcinogenicity**

**Carcinogenicity:** - Mouse - Skin

**Tumorigenic:** Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors

**IARC:** No components of this product, present at levels greater than or equal to 0.1%, is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP:** No components of this product, present at levels greater than or equal to 0.1%, is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No components of this product, present at levels greater than or equal to 0.1%, is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** No data available

**Specific target organ toxicity - single exposure:** Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure:** No data available

**Aspiration hazard:** No data available

**Additional Information**

**RTECS:** LQ8400000

Cough, Shortness of breath, Headache, Nausea, Vomiting, narcosis  
Stomach - Irregularities - Based on Human Evidence

Section 12. Ecological Information

**Toxicity:** No data available

**Persistence and degradability:** No data available



**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**Results of PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects:** No data available

Section 13. Disposal Considerations

**Waste Treatment Methods:** Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

**DOT (US)**

**UN number:** 1190

**Class:** 3

**Packing group:** II

**Proper shipping name:** Ethyl formate

**Poison Inhalation Hazard:** No

**IMDG**

**UN number:** 1190

**Class:** 3

**Packing group:** II

**EMS-No:** F-E, S-D

**Proper shipping name:** Ethyl Formate

**IATA**

**UN number:** 1190

**Class:** 3

**Packing group:** II

**Proper shipping name:** Ethyl formate

Section 15. Regulatory Information

**SARA 302 Components:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:** 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.

**SARA 311/312 Hazards:** Fire Hazard, Acute Health Hazard, Chronic Health Hazard



**Massachusetts Right to Know Components**

Ethyl formate (CAS-No. 109-94-4)

**Pennsylvania Right to Know Components**

Ethyl formate (CAS-No. 109-94-4)

**New Jersey Right to Know Components**

Ethyl formate (CAS-No. 109-94-4)

**California Prop. 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**HMS Rating**

**Health:** 2\*

**Flammability:** 3

**Reactivity:** 0

**NFPA Rating**

**Health:** 2

**Flammability:** 3

**Reactivity:** 0

Section 16. Other Information

**Disclaimer:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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