

**1. PRODUCT AND COMPANY IDENTIFICATION:**

**PRODUCT CODE** A0555  
**PRODUCT NAME** ETHYL FORMATE  
**SUPPLIER** Shanghai M & U International Trade Co., Ltd.  
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**FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)**

**2. HAZARD IDENTIFICATION:**

**Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.  
Acute Tox. 4 H332 Harmful if inhaled.  
Eye Irrit. 2A H319 Causes serious eye irritation.  
STOT SE 3 H335 May cause respiratory irritation.

**Label elements**

Harmful in contact with skin or if inhaled.

**GHS label elements**

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible. The substance is classified and labeled according to the Globally Harmonized System (GHS).

## Hazard pictograms



GHS02

GHS07

## Signal word

Danger

## Hazard-determining components of labeling:

Ethyl Formate

## 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.  
P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

## Classification system:

### NFPA ratings (scale 0 - 4)



Health = 2  
Fire = 3  
Reactivity = 0

### HMIS-ratings (scale 0 - 4)



Health = 2  
Fire = 3  
Reactivity = 0

**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:**

Not applicable.

**vPvB:**

Not applicable.

**3. COMPOSITION AND INFORMATION ON INGREDIENTS:**

**Chemical characterization: Substances**

**Description:** ethyl formate

**CAS No.:** 109-94-4

**Identification number(s)**

**EC number:** 203-721-0

**Index number:** 607-015-00-7

**4. FIRST-AID GUIDE:**

**Description of first aid measures**

**General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

**After skin contact:**

Generally the product does not irritate the skin.

**After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

**After swallowing:**

Immediately call a doctor.

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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

No further relevant information available.

## 5. FIRE-FIGHTING GUIDE:

### **Extinguishing media**

#### **Suitable extinguishing agents:**

CO2 or extinguishing powder. Fight larger fires with alcohol resistant foam.

#### **For safety reasons unsuitable extinguishing agents:**

Water with full jet

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

No further relevant information available.

### **Advice for firefighters**

#### **Protective equipment:**

Mouth respiratory protective device.

### **Additional information**

Cool endangered receptacles with water spray.

Collect contaminated firefighting water separately. It must not enter the sewage system.

## 6. ACCIDENTAL RELEASE GUIDE:

### **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

### **Environmental precautions:**

Do not allow to enter sewers/ surface or ground water.

### **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

### **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## 7. HANDLING AND STORAGE:

### **Handling:**

#### **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

### **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:**

Store in a cool location.

**Information about storage in one common storage facility:**

Not required.

**Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well-sealed receptacles.

**Specific end use(s)**

No further relevant information available.

**8. EXPOSURE AND PERSONAL PROTECTION:**

**Additional information about design of technical systems:**

No further data; see item 7.

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

**109-94-4 ethyl formate**

PEL Long-term value: 300 mg/m<sup>3</sup>, 100 ppm

REL Long-term value: 300 mg/m<sup>3</sup>, 100 ppm

TLV Short-term value: 303 mg/m<sup>3</sup>, 100 ppm

**Additional information:**

The lists that were valid during the creation were used as a basis.

**Exposure controls**

**Personal protective equipment:**

**General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

**Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**Protection of hands:**



### Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material should be based on consideration of the penetration times, rates of diffusion and the degradation

### Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

### Penetration time of glove material

The exact break through time has to be determined by the manufacturer of the protective gloves and has to be observed.

### Eye protection:



### Tightly sealed goggles

## 9. PHYSICAL AND CHEMICAL PROPERTIES:

### Information on basic physical and chemical properties

<b>General Information</b>	
<b>Appearance:</b>	
<b>Form:</b>	Liquid
<b>Color:</b>	Colorless to pale yellow
<b>Odor:</b>	Fruit-like
<b>Odour threshold:</b>	Not determined.
<b>pH-value:</b>	Not determined.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	-80.5 °C (-113 °F)
<b>Boiling point/Boiling range:</b>	54.05 °C (129 °F)
<b>Flash point:</b>	-20 °C (-4 °F)
<b>Flammability (solid, gaseous):</b>	Not applicable.
<b>Ignition temperature:</b>	440 °C (824 °F)
<b>Decomposition temperature:</b>	Not determined.
<b>Auto igniting:</b>	Not determined.
<b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/ vapor mixtures are possible.
<b>Explosion limits:</b>	

<b>Lower:</b>	2.7 Vol %
<b>Upper:</b>	16.5 Vol %
<b>Vapor pressure at 20 °C (68 °F):</b>	256 hPa (192 mm Hg)
<b>Density at 20 °C (68 °F):</b>	0.925 g/cm <sup>3</sup> (7.719 lbs/gal)
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.
<b>Solubility in / Miscibility with</b>	
<b>Water at 20 °C (68 °F):</b>	118 g/l
<b>Partition coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
<b>Organic solvents:</b>	100.0 %
<b>VOC content:</b>	100.0 %
	925.0 g/l / 7.72 lb/gl
<b>Other information</b>	No further relevant information available.

## 10. STABILITY AND REACTIVITY:

### Reactivity

#### Chemical stability

#### Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

#### Possibility of hazardous reactions

No dangerous reactions known.

#### Conditions to avoid

No further relevant information available.

#### Incompatible materials:

No further relevant information available.

#### Hazardous decomposition products:

No dangerous decomposition products known.

## 11. TOXICOLOGICAL INFORMATION:

### Information on toxicological effects

#### Acute toxicity:

#### LD/LC50 values that are relevant for classification:

109-94-4 ethyl formate

Oral LD50 1850 mg/kg (rat)

#### Primary irritant effect:

**On the skin:**

No irritant effect.

**On the eye:**

Irritating effect.

**Sensitization:**

No sensitizing effects known.

**Additional toxicological information:****Carcinogenic categories****IARC (International Agency for Research on Cancer)**

Substance is not listed.

**NTP (National Toxicology Program)**

Substance is not listed.

**OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

**12. ECOLOGICAL INFORMATION:****Toxicity****Aquatic toxicity:**

No further relevant information available.

**Persistence and degradability**

No further relevant information available.

**Behavior in environmental systems:****Bioaccumulative potential**

No further relevant information available.

**Mobility in soil**

No further relevant information available.

**Additional ecological information:****General notes:**

Water hazard class 1 (Assessment by list): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**Results of PBT and vPvB assessment****PBT:**

Not applicable.



**vPvB:**

Not applicable.

**Other adverse effects**

No further relevant information available.

**13. DISPOSAL RECOMMENDATIONS:****Waste treatment methods****Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

**Uncleaned packagings:****Recommendation:**

Disposal must be made according to official regulations.

**14. TRANSPORTATION INFORMATION:**

<b>UN-Number</b> <b>DOT, ADR, IMDG, IATA</b>	UN1190
<b>UN proper shipping name</b> <b>DOT</b> <b>ADR</b> <b>IMDG, IATA</b>	Ethyl formate 1190 Ethyl formate ETHYL FORMATE
<b>Transport hazard class(es)</b> <b>DOT</b> <b>Class</b> <b>Label</b>	3 Flammable liquids 3
<b>ADR</b> <b>Class</b> <b>Label</b>	3 (F1) Flammable liquids 3
<b>IMDG, IATA</b> <b>Class</b> <b>Label</b>	3 Flammable liquids 3
<b>Packing group</b> <b>DOT, ADR, IMDG, IATA</b>	II
<b>Environmental hazards:</b> <b>Marine pollutant:</b>	No
<b>Special precautions for user</b> <b>Danger code (Kemler):</b> <b>EMS Number:</b>	Warning: Flammable liquids 33 F-E,S-D
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b>	

<b>DOT Quantity limitations</b>	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
<b>ADR Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
<b>IMDG Limited quantities (LQ) Excepted quantities (EQ)</b>	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
<b>UN "Model Regulation":</b>	UN1190, Ethyl formate, 3, II

## 15. REGULATORY INFORMATION:

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**Sara**

**Section 355 (extremely hazardous substances):**

Substance is not listed.

**Section 313 (Specific toxic chemical listings):**

Substance is not listed.

**TSCA (Toxic Substances Control Act):**

Substance is listed.

**Proposition 65**

**Chemicals known to cause cancer:**

Substance is not listed.

**Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

**Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

**Chemicals known to cause developmental toxicity:**

Substance is not listed.

**Carcinogenic categories**

**EPA (Environmental Protection Agency)**

Substance is not listed.

**TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

## NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

### GHS label elements

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### Hazard pictograms

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### Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

## 16. OTHER INFORMATION:

The information in this SDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the SDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the SDS. The user should review these regulations to ensure full compliance.

**Prepared By:** M&U International LLC

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