



MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Ethyl formate

SYNONYMS: Formic acid, ethyl ester; Ethyl methanoate

SUPPLIER: Huangshi Yucheng Trade Co.,Ltd

60 Room, 6 Suit, Lakeshore Area, Huangshi City, Hubei, China

86-714-6403185/86-714-6401119

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME: Ethyl formate

PERCENT: $\geq 99\%$

CAS NUMBER: 109-94-4

EINECS: 203-721-0

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Danger! Harmful if inhaled or swallowed. Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. Target Organs: Blood, kidneys, central nervous system, respiratory system, eyes, skin.

POTENTIAL HEALTH EFFECTS

EYES: Causes eye irritation.

SKIN: Causes skin irritation. May be harmful if absorbed through the skin.

INGESTION: Harmful if swallowed. May cause irritation of the digestive tract.

INHALATION: Harmful if inhaled. Causes respiratory tract irritation.

CHRONIC: Chronic exposure may cause blood effects. May cause kidney damage.

Exposure to high concentrations may cause central nervous system depression. Animal studies have reported the development of tumors.

SECTION 4. FIRST AID MEASURES

SKIN: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes

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

INHALATION: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

INGESTION: Do not induce vomiting. Get medical aid immediately. Call a poison control center.

SECTION 5. FIRE FIGHTING MEASURES

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH



HUANGSHI YUCHENG TRADE CO., LTD

(approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air.

Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire.

Flammable liquid and vapor.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Auto ignition

Temperature: 550 deg C (1,022.00 deg F)

Flash Point: -20 deg C (-4.00 deg F)

Explosion

Limits: Lower: 2.70 vol %

Explosion

Limits: Upper: 16.50 vol %

NFPA Rating: health: 2; flammability: 3; instability: 1;

SECTION 6. ACCIDENTAL RELEASE MEASURES

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

SECTION 7. HANDLING AND STORAGE

Handling: Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges.

Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables- area.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace



conditions warrant respirator use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: APHA: 20 max
Odor: ether-like
pH: 4.1(5g/L aq.sol.(20 C))
Vapor Pressure: 256 mbar @ 20 deg C
Vapor Density: 2.56
Evaporation Rate: Not available
Viscosity: 0.4 cP @ 20 deg C
Boiling Point: 54 deg C @ 760 mmHg (129.20 F)
Freezing/Melting Point: -80 deg C (-112.00 F)
Decomposition Temperature: Not available
Solubility in water: 11 g/100mL (18 C)
Specific Gravity/Density: 0.917
Molecular Formula: C3H6O2
Molecular Weight: 74.08

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Moisture sensitive.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat, exposure to moist air or water. Incompatibilities with Other Materials Strong oxidizing agents, bases, sodium.
Hazardous Decomposition Products Carbon monoxide, carbon dioxide, formic acid, ethanol.
Hazardous Polymerization: Has not been reported.

SECTION 11. TOXICOLOGICAL INFORMATION

RTECS#:
CAS# 109-94-4: LQ8400000
RTECS:
CAS# 109-94-4: Oral, rabbit: LD50 = 2075 mg/kg;

LD50/LC50:
Oral, rat: LD50 = 1850 mg/kg;
Skin, rabbit: LD50 = >20 mL/kg;

Carcinogenicity:
Ethyl formate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other:
See actual entry in RTECS for complete information.

SECTION 12. ECOLOGICAL INFORMATION

Other: Do not empty into drains.

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations

SECTION 14. TRANSPORT INFORMATION

US DOT
Shipping Name: ETHYL FORMATE



HUANGSHI YUCHENG TRADE CO., LTD

Hazard Class: 3
UN Number: UN1190
Packing Group: II
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

SECTION 15. REGULATION INFORMATION

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F

Risk Phrases:

R 11 Highly flammable.

R 20/22 Harmful by inhalation and if swallowed.

R 36/37 Irritating to eyes and respiratory system.

Safety Phrases:

S 9 Keep container in a well - ventilated place.

S 16 Keep away from sources of ignition - No smoking.

S 24 Avoid contact with skin.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 109-94- 4: 1

Canada

CAS# 109-94- 4 is listed on Canada's DSL List

Canadian WHMIS Classifications: B2, D1B, D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations

and the MSDS contains all of the information required by those regulations.

CAS# 109-94- 4 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 109-94- 4 is listed on the TSCA

Inventory.

SECTION 16. Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use.

Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.