



MATERIAL SAFETY DATA SHEET

Ethyl Crotonate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Ethyl Crotonate

SYNONYM: 2-Butenoic acid, ethyl ester

MOLECULAR FORMULA: C₆H₁₀O₂

MOLECULAR WEIGHT: 114.14 g/mol

CREATION DATE: Mar 02 2007

CONTACT PERSON:

Mr. S.G.Mokashi
Godavari Biorefineries Ltd.
45-47, Somaiya Bhavan
M.G.Road, P.O.Box384
Fort, Mumbai 400001
Tel: 0091 22 22048272
Fax: 0091 22 22047297

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2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Danger! Flammable liquid and vapor. Corrosive. Lachrymator (substance which increases the flow of tears). The toxicological properties of this material have not been fully investigated. Causes eye and skin burns. Causes digestive and respiratory tract burns.

Target Organs: None.

POTENTIAL HEALTH HAZARDS

Eye: Causes eye burns. Lachrymator (substance which increases the flow of tears).

Skin: Causes skin burns.

Ingestion: Causes gastrointestinal tract burns.

Inhalation: May cause severe irritation of the upper respiratory tract with pain, burns, and inflammation. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

Chronic: No information found.

3. COMPOSITION, INFORMATION ON INGREDIENTS

CAS No.	EC No.	Chemical Name	Percent
623-70-1	210-808-7	Ethyl Crotonate	>99

4. FIRST AID MEASURES

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

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

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

5. FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas

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

Auto ignition Temperature: Not available.

Flash Point: 2 deg C (35.60 deg F)

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: Not published

6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Wash area with soap and water. Clean up spills immediately, observing precautions in the Protective Equipment section. Cover with sand, dry lime or soda ash and place in a closed container for disposal. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

7. HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Avoid breathing dust, mist, or vapor. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Chemical Name	ACGIH	NIOSH	OSHA- Final PELs
Ethyl crotonate, 99 %	none listed	none listed	none listed

OSHA Vacated PELs: Ethyl crotonate, 93%: None listed

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

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 gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	clear, colorless
Odor:	Not available
pH:	Not available
Vapor Pressure:	Not available
Vapor Density:	3.94 (Air = 1.0)
Evaporation Rate:	Not available
Viscosity:	Not available
Boiling Point:	142 – 143 °C
Flash Point:	2 °C – Closed cup
Freezing/Melting Point:	Not available

Decomposition Temperature: Not available

Solubility in water: Not available.

Specific Gravity/Density: 0.9180 g/cm³ at 25 °C

10. STABILITY AND REACTIVITY

NORMALLY STABLE (CONDITIONS TO AVOID):

Stable under normal conditions. Do not expose to high temperatures.

INCOMPATIBILITIES:

Strong acids, oxidants and alkalis.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition produces Acetaldehyde, substituted amides and possibly other materials.

Combustion is expected to produce carbon monoxide, carbon dioxide and oxides of nitrogen.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

RTECS#: CAS# 623-70-1: GQ3500000

LD50/LC50:

RTECS:

CAS# 623-70-1: Dermal, guinea pig: LD50 = >5 gm/kg;

Draize test, rabbit, eye: 20 mg Severe;

Oral, rat: LD50 = 3 gm/kg;

Carcinogenicity: Ethyl crotonate, 96% - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

12. ECOLOGICAL INFORMATION

No information available.

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

US DOT

Shipping Name: ETHYL CROTONATE

Hazard Class: 3

UN Number: UN1862

Packing Group: II

Canada TDG

Shipping Name: Not available

Hazard Class:

UN Number:

Packing Group:

15. REGULATORY INFORMATION

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: F C

Risk Phrases:

R 11 Highly flammable.

R 34 Causes burns.

Safety Phrases:

S 9 Keep container in a well-ventilated place.

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

S 24/25 Avoid contact with skin and eyes.

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

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS# 623-70-1: Not available

Canada

CAS# 623-70-1 is listed on Canada's DSL List

Canadian WHMIS Classifications: Not available

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# 623-70-1 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 623-70-1 is listed on the TSCA

Inventory.

16. OTHER INFORMATION

The information in this safety data sheet is based on data and samples provided. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes.

The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this

safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. Godavari Biorefineries Limited does not guarantee the accuracy or exhaustiveness of the information provided.