Ethyl-L-Lactate
Safety Data Sheet

Supersedes: 19/04/2023 Revision: 1.1 Revision date: 24/01/2024

SECTION 1: Identification

1.1 Identification

Product form	:	Substance
Substance name	:	Ethyl-L-Lactate
CAS No	:	687-47-8
EC/ List No	:	211-694-1
Formula	:	$C_5H_{10}O_3$
Molecular weight	:	118.13 g/mol
Synonyms	:	Ethyl (S)-2-hydroxypropionate,Ethyl-S-Lactate,(2S)-2-ethoxypropanoic acid

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Lubricants and greases, biocides (e.g. disinfectants, pest control products), coating products, pH regulators and water treatment products, fragrances and air fresheners, pulp and paper products, electrical, electronic and optical equipment, textile processing aid, Manufacture of substances.

1.3 Details of the supplier of the safety data sheet

Godavari Biorefineries Ltd.
45/47, Somaiya bhavan,
Mahatma Gandhi Road,
Fort, Mumbai -400001, INDIA.
T 0091 22 61702100/22048272
Email: alka@somaiya.com
www.somaiya.com

1.4 Emergency telephone Number

Emergency number	:	91-08350) 260046 /47 /48 0091 22 61702100/22048272 (Monday – Friday -09.30 hrs to 18.00 hrs)

SECTION 2: Hazard(s) identification

GHS classification

2.1 Classification of the substance or mixture

Flammable Liquids 3	:	H226 Flammable liquid and vapor.
Eye Damage 1	:	H318 Causes serious eye damage.
Specific Target Organ Toxicity - Single Exposure 3	:	H335 May cause respiratory irritation.

2.2 GHS labeling

Hazard pictograms :

GHS02 GHS05 GHS07

Signal word : Danger

Hazard statements :

Precautionary statements :

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
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/vapors/spray
P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a poison center/doctor.

P370+P378: In case of fire: Use CO_2, powder or water spray to extinguish.

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 in accordance with local/regional/national/international regulations.

2.3 Other hazards

Other hazards not contributing to the classification : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

2.4 Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/Information on ingredients

3.1 Substance

Substance type : Mono-constituent

Name	Product identifier CAS No EC No Index No	Concentration %	GHS classification
Ethyl (S)-2-hydroxypropionate (Main constituent)	687-47-8 211-694-1 607-129-00-7	≥ 99 %	Flam. Liq. 3-H226; Eye Dam. 1-H318; STOT SE 3 -H335

Full text of hazard classes and H-statements: see section 16

3.2 Mixture

None

SECTION 4: First aid measures

4.1 Description of first aid measures

General information : Consult a physician. Show this safety data sheet to the doctor in attendance. Do not leave affected persons unattended.

First aid personnel should pay attention to their own safety.

Inhalation : If breathed in, move person into fresh air. If not breathing, give artificial respiration. Keep warm at rest.

Skin contact : Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Wash clothing before reuse.

Eye contact	:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately. Remove contact lenses if present and easy to do. Protect unharmed eye.
Ingestion	:	Drink plenty of water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	:	Irritating to respiratory system.
Symptoms/injuries after skin contact	:	Redness Burn
Symptoms/injuries after eye contact	:	Mild Irritation, superficial burning sensation Tearing
Symptoms/injuries after ingestion	:	Cough
Chronic symptoms	:	None reported

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Explosion hazard	:	carbon dioxide (CO2), carbon monoxide.
Reactivity	:	Under conditions giving incomplete combustion, hazardous gases produced may consists of CO and CO2.

5.3 Advice for firefighters

Firefighting instructions	:	Avoid breathing fire gases or vapours
Protection during firefighting	:	Use personal protective equipment. In the event of fire, wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment	:	Self-contained breathing equipment.
Emergency procedures	:	Keep upwind. Mark the danger area. Advice for non-emergency personnel: Use personal protective equipment. Evacuate personnel to safe areas. Ventilate the area. Keep people away from and upwind of spill/leak. Advice for emergency responders: Use personal protective equipment.

6.1.2 For Emergency responders

Protective equipment	:	Wear appropriate protective equipment and self- contained breathing apparatus
Emergency procedures	:	Stop leak if safe to do so. Ventilate area.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

For containment	:	Contain released substance, transfer (pump) into suitable containers. Use compatible material of containers. Do not use compressed air for pumping over spills.
Methods for cleaning up	:	Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite, powdered limestone. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/ authorized disposal facility. Wash clothing and equipment after handling. Dispose contaminated material as waste according to item 13.

6.4 Reference to other sections

No additional information available.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling	:	Avoid physical damage to containers. Avoid prolong contact with eyes and skin. Ensure good ventilation/exhaustion at the workplace. Handle in accordance with good industrial hygiene and safety practice.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2 Conditions for safe storage, including any incompatibilities

Incompatible products	:	Oxidizing agent, Acid chlorides, Acid anhydrides, Chloroformates, Reducing agents
Storage temperature	:	Storage temperature :< 49.6 °C / 119.4 °F. Storage class (10): Combustible liquids
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents.
Storage area	:	Store in a dry area. Ventilation at floor level. Keep out of direct sunlight. Fireproof storeroom. Keep locked up. Meet the legal requirements. Avoid moisture
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packaging in solid containers.
Packaging materials	:	No data available

7.3 Specific end uses

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits:

Exposure limits not established in US.

8.2 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	:	 Protective goggles. Gloves. Protective clothing.
Materials for protective clothing	:	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.
Eye protection		Tightly sealed goggles
Skin and body protection	:	Head/neck protection. Corrosion-proof clothing.
Respiratory protection	:	In case of insufficient ventilation wear suitable respiratory equipment. Breathing apparatus with filter. (DIN 141). Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid
Colour	:	Colourless
Odour	:	Odourless
pH	:	Not determined
Melting point	:	-9 °C (246 K)
Freezing point	:	No Data Available
Initial boiling point/boiling range	:	154.5 °C
Flash Point	:	53.4 °C (99.6 kPa)
Relative density	:	1.034 g/cm³ at 20 °C
Specific gravity/ density	:	No Data Available
Molecular mass	:	118.13 g/mol
Flammability	:	Flammable liquid
Upper/lower flammability or Explosive limit	:	1.5 – 11.4 vol %
Solubility	:	Miscible in water
Vapor pressure	:	510 Pa (20 °C)
Vapour density	:	No Data Available
Evaporation Rate	:	No Data Available
Partition coefficient n-octanol/water	:	0.31 Log KOW (octanol-water) at 20 °C
Auto-ignition temperature	:	430 °C (EU Method A.15 (Auto-Ignition Temperature (Liquids and Gases)))
Decomposition temperature	:	No Data Available
Viscosity	:	3.6 mm²/s (static)
Oxidizing properties	:	Non oxidizing

9.2 Other information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	No further relevant information available.
10.2 Chemical Stability	:	Stable under recommended storage conditions
10.3 Possibility of hazardous reactions	:	No dangerous reactions known.
10.4 Conditions to avoid	:	Extremes of temperature and direct sunlight. Direct heating, dirt, chemical contamination, sunlight, UV or ionising radiation. No flames, no sparks. Eliminate all sources of ignition.
10.5 Incompatible materials	:	Oxidizing agents, bases, acids, metals.
10.6 Hazardous decomposition products	:	Toxic fumes, carbon dioxide (CO2), carbon monoxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Likely routes of exposure	:	Eye contact, STOT SE 3
Acute toxicity	:	Based on available data, the classification criteria are not met.

ABC (XYZ)		
LD50 oral toxicity	:	>2000 mg/kg body weight (Rat)
Repeated Dose Toxicity	:	Species: Rat; Method: Oral; Dose: LC50: >5.4mg/kg/d; exposure period: 4 hr Observation Period:15 days

Skin irritation	:	Not classified
Serious eye damage/irritation	:	Causes serious eye damage.
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified (Based on available data, the classification criteria are not met)
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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Ecology – general	:	Not classified
Ecology – air	:	Not classified
Ecology – water	:	Not classified

Ethyl-L-Lactate (687-47-8)			
	Toxicity to Fish	**Toxicity to aquatic invertebrates**	**Toxicity to Microorganisms**

Species	Danio rerio	Raphidocelis subcapitata	Daphnia magna (Water flea)	Activated sludge (bacteriae)
Value	LC 50: 320mg/l	EC50>2200 mg/l	EC 50: >1078mg/l	NOEC: >1000mg/l
Exposure time	96 h	72 h	24h	3h
Test method: OECD	203	201	202	209

12.2 Persistence and degradability

Ethyl-L-Lactate (687-47-8)

Persistence and degradability : Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil. This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

12.3 Bioaccumulative potential

Ethyl-L-Lactate (687-47-8)

Log Pow	:	0.31
Bioaccumulative potential	:	Based on the logKow (0.31), and also for its ready biodegradability, and its high solubility in water, ethyl (S)-lactate is not expected to bioconcentrate.

12.4 Mobility in soil

Ethyl-L-Lactate (687-47-8)

Surface tension	:	No data available
Ecology – soil	:	The log partition coefficient of the test substance was predicted to be < 3.0

12.6 Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal recommendations : Remove and dispose waste in accordance with local and/or national regulations. Recommended practice of physico-chemical/biological treatment and authorized waste incinerator for solvents with energy recovery. Do not discharge into drains or the environment.

SECTION 14 : TRANSPORT INFORMATION

Marine transport (IMDG)

UN No. : 1192

Proper shipping name and description : Ethyl lactate

Hazard Class : 3

Packing group : III

Hazard Identification Number : 30

Marine pollutant : No

Labels Environmentally : Flammable liquid

EMS Code : F-E,S-D

Air transport ICAO/IATA

UN number : 1192

Proper shipping name : Ethyl lactate

Hazard Class : 3

Packing group	:	III
Labels Environmentally	:	Flammable liquid
hazardous	:	No

Department of Transportation (DOT)

UN number	:	1192
Proper shipping name and description	:	Ethyl lactate
Class	:	3
Packaging group	:	III
Reportable Quantity (RQ)	:	5 lbs
Poison Inhalation Hazard	:	No
Hazard labels	:	 3 - Flammable liquid

SECTION 15: Regulatory information

15.1 National regulations

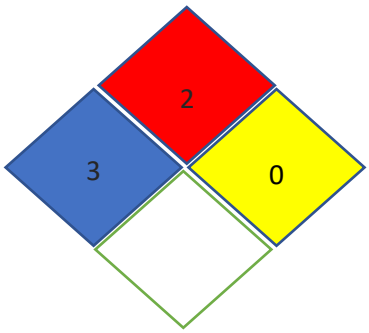
Country	National Inventories	Listing
CANADA	DSL	Listed
CHINA	IECSC	Listed
JAPAN	ENCS	Listed
PHILIPPINES	PICCS	Listed
SOUTH KOREA	KECI	Listed
USA	TSCA	Listed

SECTION 16: Other information

16.1 Hazard Statement

: H226 Flammable liquid and vapor.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

16.2 NFPA Rating



16.3 Abbreviations and acronyms

PBT =Persistent Bioaccumulative and Toxic

vPvB= Very Persistent and Very Bioaccumulative

SCBA= Self Contained Breathing Apparatus

NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit

OSHA PEL=Occupational Safety and Health Adminstration Permissible Exposure Limit

OELTWA= Occupational Exposure Limit Time Weighted Averages

IDLH= Immediately Dangerous to Life or Health

UEL= Upper Explosive Limit

LEL= Lower Explosive Limit

RTECS= Registry of Toxic Effects of Chemical Substances

NTP=National Toxicology Programm

IARC= International Agency for Research on Cancer

EPA=Environmental Protection Agency

TSCA= Toxic Substances Control Act

NFPA= National Fire Protection Association

CSR=Chemical Safety Report

BCF = Bio Concentration Factor

DNEL = Derived No Effect Level

PNEC = Predicted No Effect Concentration

TLV = Threshhold Limit Value

ACGIH = American Conference of Governmental Industrial Hygienist

REACH = Registration, Evaluation .Authorisation and Restriction of Chemicals

CLP = Classification, Labelling and Packaging

LD / LC = Lethal Doses / Lethal Concentration

GHS = Globally Harmonised System

ADR = Accord europeen relative au transport international de marchandises

IMDG-Code = International Maritime Code for Dangerous Goods

EmS = Emergency measures on Sea

ICAO = International Civil Aviation Organization

IATA/DGR= International Air Transport Association/Dangerous Goods Regulation

16.4 Further information:

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