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THE POWER OF THREE³

PHARMCO-AAPER

AND COMMERCIAL ALCOHOLS

Product Information (203) 740-3471 / Emergency Assistance CHEMTREC 1-800-424-9300

MATERIAL SAFETY DATA SHEETS

Manufacturer: PHARMCO-AAPER
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Ethyl Lactate

1. CHEMICAL PRODUCT IDENTIFICATION

Product Name: Ethyl Lactate
Synonym(s): L-Ethyl Lactate; lactic acid ethyl ester ; 2-Hydroxypropanoic acid ethyl ester
Molecular Formula: $\text{CH}_3\text{CH}(\text{OH})\text{CO}_2\text{C}_2\text{H}_5$
Molecular Weight: 118.13

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS No	Percent	Hazardous
Ethyl Lactate	687-47-8	99 - 100%	Yes

3. HAZARDS IDENTIFICATION

WARNING! FLAMMABLE LIQUID.MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY AND DIGESTIVE TRACT IRRITATION.

NFPA Hazard Ratings: Health - 2, Flammability - 2, Reactivity - 0

NOTE: NFPA ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Potential Health Effects

Inhalation: Inhalation of harmful vapors concentrations is unlikely at room temperature. Vapors do irritate the respiratory tract, causing sore throat, shortness of breath, and coughing.

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause digestive tract disturbances.

Inhalation: May cause respiratory tract irritation.

Chronic: No information found.

4. FIRST AID MEASURES

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

Skin: Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Remove contaminated clothing and shoes.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately. Do NOT induce vomiting. Allow the victim to rinse his mouth and then to drink 2-4 cupfuls of water, and seek medical advice.

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

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Fire:

Autoignition Temperature: 400 deg C (752.00 deg F)

Flash Point: 46 deg C (114.80 deg F)

Explosion Limits, Lower: 1.50 vol % Upper: 11.40 vol %

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. Containers may explode in the heat of a fire. Flammable Liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

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., dry sand or earth), then place into a chemical waste container. Do not flush into a sewer. Remove all sources of ignition. Use a spark-proof tool. A vapor suppressing foam may be used to reduce vapors.

7. HANDLING AND STORAGE

Handling: Ground and bond containers when transferring material. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. 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. Keep containers tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

ACGIH: none listed

NIOSH: none listed

OSHA - Final PELs: none listed

OSHA Vacated PELs: ETHYL L-LACTATE: No OSHA Vacated PELs are listed for this chemical. Water: No OSHA Vacated PELs are listed for this chemical.

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 minimize contact with skin.

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 a respirator's use. Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: clear colorless to pale yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: 2 mmHg @ 20 C

Vapor Density: 4.1

Evaporation Rate:

Viscosity: Not available.

Boiling Point: 154760.00 deg C

Freezing/Melting Point: -26 deg C

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Decomposition Temperature: Not available.
Solubility: Slightly soluble.
Specific Gravity/Density: 1.0420g/cm³

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, strong oxidants.

Incompatibilities with Other Materials: Oxidizing agents - bases - acids.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

RTECS#: CAS# 687-47-8 unlisted.

CAS# 7732-18-5: ZC0110000

LD50/LC50: Not available.

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

Carcinogenicity: CAS# 687-47-8: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7732-18-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Other Studies: No data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Environmental Fate: Not available.

Physical/Chemical: Not available.

Other: Not available.

13. DISPOSAL CONSIDERATIONS

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

RCRA D-Series Maximum Concentration of Contaminants: None listed.

RCRA D-Series Chronic Toxicity Reference Levels: None listed.

RCRA F-Series: None listed.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

14. TRANSPORT INFORMATION

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Domestic (Land, D.O.T.)
Proper Shipping Name: Ethyl Lactate
Hazard Class: 3
UN/NA: UN1192
Packing Group: III

International (Water, I.M.O.)
Proper Shipping Name: Ethyl Lactate
Hazard Class: 3.3
UN/NA: UN1192
Packing Group: III

International (Air, I.C.A.O.)
Proper Shipping Name: Ethyl Lactate
Hazard Class: 3
UN/NA: UN1192
Packing Group: III

15. REGULATORY INFORMATION

US FEDERAL

TSCA: CAS# 687-47-8 is not listed on the TSCA inventory. It is for research and development use only.

CAS# 7732-18-5 is listed on the TSCA inventory.

Health & Safety Reporting List: None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.

Section 12b: None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule: None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ): None of the chemicals in this material have an RQ.

Section 302 (TPQ): None of the chemicals in this product have a TPQ.

Section 313: No chemicals are reportable under Section 313.

Clean Air Act:: This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:: None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 687-47-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: F

Risk Phrases: R 10 Flammable.

Safety Phrases: S 23 Do not inhale gas/fumes/vapour/spray.

WGK (Water Danger/Protection)

CAS# 687-47-8: No information available.

CAS# 7732-18-5: No information available.

Canada

CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.

This product does not have a WHMIS classification.

CAS# 687-47-8 is not listed on Canada's Ingredient Disclosure List.

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are: **NONE**

16. OTHER INFORMATION

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.