



THE POWER OF THREE³

PHARMCO-AAPER

AND COMMERCIAL ALCOHOLS

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

LACTIC ACID 88%

PRODUCT IDENTIFICATION

PRODUCT NAME: LACTIC ACID 88%

Manufacturer: PHARMCO-AAPER.
58 Vale Road
Brookfield, Connecticut 06804, USA
Phone (203) 740-3471
Fax (203) 740-3481

1101 Isaac Shelby Drive
Shelbyville, KY 40065
Phone (502) 633-0650
Fax (502) 633-0685

Emergency Contact:
CHEMTREC 1-800-424-9300

HAZARD RATING

- 4 = Extreme
- 3 = High
- 2 = Moderate
- 1 = Slight
- 0 = Insignificant
- C = Corrosive
- I = Spontaneous Ignition
- P = Polymerization

NFPA FIRE HAZARD

Toxicity: 2

Fire: 0

Reactivity: 0

Special (see text): C

LACTIC ACID (88%)

PRODUCT IDENTIFICATION

SYNONYM(S): 1-Hydroxyethanecarboxylic acid; 2-hydroxypropanoic acid, Ethylidenelactic acid; 2-hydroxypropanoate; Lactate; Milk acid

CAS No.: 50-21-5

Chemical Formula: CH₃CH(OH)(COOH)

Family: Organic Acid

REGULATORY

DOT: 49 CFR 172

Proper Shipping Name: Corrosive Liquid, N.O.S. (contains Lactic Acid and Water)

Solution)
Hazard Class: 8
I.D. No.: UN 1760
Packing Group: II
Label: Corrosive Liquid
Trade Name
: Lactic Acid (88%), USP
: Lactic Acid (88%), USP/FCC, Low Ammonia
: Lactic Acid (88%), Technical Grade
CERCLA/SUPERFUND: 40 CFR 302
Reportable Quantity: None (100 lbs. as waste)
Clean Water Act: 40 CFR 117
Reportable Quantity: None
SARA TITLE III & 40 CFR Part 372: Supplier Notification Requirement
This product does not contain a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

TYPICAL WEIGHT

CAS No. CHEMICAL NAME PERCENT PPM

50-21-5 Lactic Acid 88 -

7732-18-5 Water 12 -

OSHA: Hazard Communication Standard: 29 CFR 1910.1200

88% LACTIC ACID is a corrosive material to skin.

DOT: Corrosive material definition 49. CFR 173.136

88% Lactic Acid is corrosive to skin but non-corrosive to steel.

WARNING STATEMENTS

DANGER!

CAUSES BURNS TO EYES

CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT

PRECAUTIONARY MEASURES

Do not get in eyes, on skin or clothing.

Avoid breathing vapor.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

FIRST AID PROCEDURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes.

Call a physician.

IF ON SKIN, immediately flush with plenty of water. Remove contaminated clothing. Wash clothing before reuse.

INHALATION AND SWALLOWING:

IF INHALED: Remove to fresh air. If not breathing, initiate artificial respiration. If breathing is difficult, give oxygen. Call a physician.

IF SWALLOWED: If conscious or when consciousness returns, give two glasses of milk or water. DO NOT induce vomiting. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN: Follow standard medical protocol for chemical exposure.

OCCUPATIONAL CONTROL PROCEDURES

EYE PROTECTION: Wear chemical splash goggles and have eye baths immediately available at locations where there is potential for eye contact.

SKIN PROTECTION: Wear appropriate protective gloves and protective clothing that provides a barrier to prevent skin contact. Consult glove manufacturer to determine type of glove for given application. Wear a face shield and an apron that provides a barrier when splashing is likely. Wash contaminated skin promptly. Launder contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing mist and/or vapor. Use NIOSH/MSHA approved equipment when airborne exposure limits are exceeded (see below). Consult respirator manufacturer to determine appropriate type of equipment for given application. The respirator use limitations specified by NIOSH/MSHA and the manufacturer must be observed. High airborne concentrations may require use of self-contained breathing apparatus or supplied air respirator.

Respiratory protection programs must be in compliance with 29 CFR 1910.134.

VENTILATION: Provide sufficient ventilation to control exposure levels below airborne exposure limits (see below). Use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult current NFPA Standard 91 and ACGIH manual on Industrial Ventilation for design of exhaust system.

EXPOSURE LIMITS:

Component: Lactic Acid (88%)

OSHA PEL, ppm: None

OSHA STEL, ppm: None

OSHA Ceiling, ppm: None

ACGIH TLV, ppm: None

NIOSH IDLH, ppm: N/A

Approx. ORT*: 9 mg/m³

* Approx. ORT = Approximate Odor Recognition Threshold

ND = NO DATA

N/A = NOT APPLICABLE

FIRE PROTECTION INFORMATION

Flash Point: Nonflammable

Method: N/A

Auto-Ignition Temp.: Nonflammable

Flammable Limits (In Air by Volume)

: Lower – No Data

: Upper – No Data

Extinguishing Media: Residue may burn in presence of strong ignition source after the water has evaporated. Should this occur, use water spray, foam, dry chemical or carbon dioxide.

Special Firefighting Procedures: Firefighters and other who may be exposed to products of combustion should wear full protective clothing and self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

Unusual Fire and Explosion Hazards: Carbon monoxide, carbon dioxide and smoke will be produced if the residue is burned.

REACTIVITY DATA

Conditions Contributing to Instability: None known.

Materials to Avoid: Mild steel.

Hazardous Decomposition Products: No uniquely hazardous decomposition products

are expected. If the product is burned, as with any organic material, carbon monoxide, carbon dioxide, smoke and soot can be produced.

HEALTH EFFECTS SUMMARY

The following information represents human and animal experience, and the results of experiments conducted to assess the physiological properties of this material. This information was used to develop the Warning Statements and recommended Occupational Control Procedures. Because dosages were intentionally chosen to induce toxic effects, evaluation of the following information may require interpretation by qualified person(s).

HUMAN EXPERIENCE

Dermal contact and inhalation are expected to be the primary routes of occupational exposure to 88% lactic acid. Lactic acid is considered to be corrosive to the eyes and severely irritating to the skin. Prolonged contact with liquid may produce skin burns, If ingested, 88% lactic acid solution can burn the mouth, throat, and stomach and may cause sweating, nausea, vomiting, shortness of breath, and vascular collapse. Exposure to lactic acid mist can cause eye and respiratory tract irritation with coughing. Lactic acid is used in medicinal preparations for its mild antiseptic properties, though in the United States its use is limited primarily as food additive.

ANIMAL DATA

Data from toxicity studies and from the available scientific literature indicate the following:

88% Lactic Acid

Oral LD50 (Rat): 7600 mg/kg, Practically Nontoxic

Dermal LD50 (Rabbit): >7940 mg/kg, Practically Nontoxic

Eye Irritation (Rabbit, 24-hr): (FSHA) Corrosive

Skin Irritation (Rabbit, 24-hr): (FSHA) 5.5 on a scale of 8.0 Severely Irritating

DOT Skin Corrosion Test (Invitro, DOT exemption 10904): Corrosive

Male and female weanling rats were administered a commercial rat diet supplemented with lactic acid at 300, 600, and 900 mmol/kg diet for twelve weeks. No significant adverse effects on food consumption, body weight gain, or blood acid-base balance were observed.

Lactic acid was evaluated for mutagenic activity in microbial assays with six strains of *S. cerevisiae* (yeast) strain, and two *E. coli* strains and in vitro chromosome aberration tests using Chinese hamster fibroblast cell line. No evidence of mutagenicity was observed in any of these assays. Lactic acid was rapidly degraded into carbon dioxide in male rats following a single oral dose. Within six hours after administration of radiolabeled lactic acid, 42% of the total dose of radioactivity had been expired as carbon dioxide. About 37% of the dosed amount was recovered from the stomach contents. Significant decrease of blood pH and increase of blood lactic acid were reported. Infusion experiments in dogs have shown that lactic acid is actively reabsorbed in the proximal tubule and that its transport is rate-limited.

Additional Information

Lactic acid is considered GRAS (Generally Recognized as Safe) as a human food ingredient by the Food and Drug Administration (21 CFR 184.1061). The user of this product is responsible for compliance with applicable food additive regulations.

PHYSICAL PROPERTIES

Physical Appearance: Yellow to colorless liquid

Odor: Odorless

Molecular Weight: 90.1
Boiling Point: Decomposes
Solubility in Water: Complete
Freezing Point: None *
Vapor Density (Air=1): No Data
Vapor Pressure: No Data
Specific Gravity: 1.20 @ 77 Deg. F (25 Deg. C)
Viscosity: 28.6 Cp @ 77 Deg. F (25 Deg. C)

pH: 1

* Pour Point: Approximately 14 Deg. F (-10 Deg. C). It becomes a glasslike solid below -58 Deg. F (-50 Deg. C)

NOTE: These physical data are either calculated or are typical values based on material tested which may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

SPILL, LEAK, DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURE: Keep people away and upwind from the spill or leak.

Shut off the leak. Insure adequate ventilation. If it is necessary that persons enter the spill area, they must wear self-contained breathing apparatus and approved protective clothing including boots. Transfer spilled material into a salvage tank and absorb spilled material with commercial absorbing material, sweeping compound or sand. Keep spilled material out of sewers, watersheds and water systems. Use water spray to knock down vapor. Run-off to sewers may create health or explosion hazards; notify fire, health and appropriate regulatory pollution control authorities. To dispose of spilled material, follow suggestions given under "Waste Disposal," below.

WASTE DISPOSAL:

Waste 88% lactic acid is a RCRA corrosivity characteristic Hazardous Waste #D002. In all cases disposal should be in accordance with all local, state and federal laws and regulations.

This material should not be dumped, spilled, or flushed into sewers, public waterways or the environment.

Preferred Disposal Method: Neutralization

Other Disposal Method: Biodegradation

Applicable federal, state and local regulations should be followed when spills, leaks, or disposal of this material is involved. The applicable federal regulations include but are not limited to the following:

40 CFR -260, -261, -264, and -268

Regulatory Data

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): No chemicals ion this material with known CAS numbers are subject to the reporting requirements of CERCLA.

The information contained herein is based on data considered to be accurate. However, no warranty is expressed regarding the accuracy of these data or the results to be obtained from the use thereof. It is the user's obligation to determine the conditions of safe use of the product.