

Material Safety Data Sheet

Lactic acid

ACC# 12400

Section 1 - Chemical Product and Company Identification

MSDS Name: Lactic acid

Catalog Numbers: S93271, A159-500, A162-1, A162-500, S80046, S80046-1

Synonyms: 1-Hydroxyethanecarboxylic acid; 2-Hydroxypropanoic acid; 2-Hydroxypropionic acid; Milk acid; DL-Lactic acid; Racemic lactic acid; alpha-Hydroxypropionic acid; 2-Hydroxy-2-methylacetic acid.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
50-21-5	Lactic acid	85-90	200-018-0
97-73-4	Lactic anhydride	10-15	202-604-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless to slight yellow liquid.

Danger! Causes eye and skin burns. Causes digestive and respiratory tract burns.

Target Organs: Eyes, skin, mucous membranes.

Potential Health Effects

Eye: Causes eye burns. Causes redness and pain. May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin burns. Causes redness and pain.

Ingestion: Causes gastrointestinal tract burns.

Inhalation: Causes chemical burns to the respiratory tract. May cause systemic effects.

Chronic: Chronic exposure may cause effects similar to those of acute exposure.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

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

Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

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 breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

Extinguishing Media: Cool containers with flooding quantities of water until well after fire is out. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: > 112 deg C (> 233.60 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 1; 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. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Lactic acid	none listed	none listed	none listed
Lactic anhydride	none listed	none listed	none listed

OSHA Vacated PELs: Lactic acid: No OSHA Vacated PELs are listed for this chemical. Lactic anhydride: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

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 respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless to slight yellow

Odor: odorless

pH: <1

Vapor Pressure: 0.0813 mm Hg @ 25 deg C

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 122 deg C @ 15 mm Hg

Freezing/Melting Point: 17-33 deg C

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: 1.2

Molecular Formula: C₃H₆O₃

Molecular Weight: 90.08

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid: Excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Metals, strong oxidizing agents, strong reducing agents, strong bases, nitric acid, iodides.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 50-21-5: OD2800000

CAS# 97-73-4: unlisted.

LD50/LC50:

CAS# 50-21-5:

Draize test, rabbit, eye: 750 ug Severe;

Draize test, rabbit, skin: 5 mg/24H Severe;

Draize test, rabbit, skin: 100 mg/24H Moderate;

Oral, mouse: LD50 = 4875 mg/kg;

Oral, rat: LD50 = 3543 mg/kg;

Skin, rabbit: LD50 = >2 gm/kg;

CAS# 97-73-4:

Carcinogenicity:

CAS# 50-21-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 97-73-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: Mutation in bacteria.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: *Pseudomonas putida*:

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	CORROSIVE LIQUID, ACIDIC, ORGANIC,
Hazard Class:	8	8
UN Number:	UN3265	UN3265
Packing Group:	III	II
Additional Info:		N.O.S.

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 50-21-5 is listed on the TSCA inventory.

CAS# 97-73-4 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.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 50-21-5: immediate.

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# 50-21-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 97-73-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

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:

C

Risk Phrases:

R 34 Causes burns.

Safety Phrases:

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.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 50-21-5: 0

CAS# 97-73-4: No information available.

Canada - DSL/NDSL

CAS# 50-21-5 is listed on Canada's DSL List.

CAS# 97-73-4 is listed on Canada's NDSL List.

Canada - WHMIS

This product has a WHMIS classification of E.

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.

Canadian Ingredient Disclosure List

CAS# 50-21-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information
--

MSDS Creation Date: 9/02/1997

Revision #5 Date: 8/03/2004

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 Fisher 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 Fisher has been advised of the possibility of such damages.