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MSDS Number: **L0522** \* \* \* \* \* *Effective Date: 05/19/08* \* \* \* \* \* *Supercedes: 08/18/05*

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# LACTIC ACID

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## 1. Product Identification

**Synonyms:** 1-Hydroxyethanecarboxylic acid; 2-hydroxypropanoic acid, Ethylidenelactic acid

**CAS No.:** 50-21-5

**Molecular Weight:** 90.08

**Chemical Formula:** CH<sub>3</sub>CHOHCOOH

**Product Codes:**

J.T. Baker: 0194, 0196, 0197

Mallinckrodt: 2672, 2676

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## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
-----	-----	-----
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Lactic Acid	50-21-5	88%
Yes		

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### 3. Hazards Identification

#### Emergency Overview

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**DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT.  
HARMFUL IF SWALLOWED OR INHALED.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

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Health Rating: 3 - Severe

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;  
PROPER GLOVES

Storage Color Code: White (Corrosive)

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#### Potential Health Effects

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##### **Inhalation:**

Inhalation of dust or vapors may be corrosive to the mucous membranes. Symptoms may include sore throat, coughing, and shortness of breath.

##### **Ingestion:**

Corrosive. Causes burns in the mouth, throat, and stomach. May cause diarrhea, nausea, vomiting, perspiration, and shortness of breath. Severe cases may produce cyanosis and vascular collapse.

##### **Skin Contact:**

Causes severe irritation. May have corrosive effects, producing skin burns.

##### **Eye Contact:**

Causes severe irritation. May cause redness, pain, blurred vision, and eye damage.

##### **Chronic Exposure:**

No information found.

##### **Aggravation of Pre-existing Conditions:**

No information found.

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## 4. First Aid Measures

### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

### **Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

### **Skin Contact:**

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

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## 5. Fire Fighting Measures

### **Fire:**

Flash point: > 112C (> 234F)

Burns when exposed to heat or flame.

### **Explosion:**

Not considered to be an explosion hazard.

### **Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide.

### **Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**

Colorless to slightly yellow, syrupy liquid.

**Odor:**

Slight acrid odor.

**Solubility:**

Miscible in water.

**Specific Gravity:**

1.2

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

122C (252F) @ 15 mm Hg

**Melting Point:**

17C (63F)

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Hydrofluoric acid, nitric acid plus hydrofluoric acid, oxidizing agents, iodides, albumin.

**Conditions to Avoid:**

Heat, incompatibles.

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## 11. Toxicological Information

Oral rat LD50: 3543 mg/kg Irritation: Skin rabbit: 500 mg/24H severe Eye rabbit: 750 ug/kg severe Investigated as a mutagen.

-----\Cancer Lists\-----

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Lactic Acid (50-21-5) None	No	No	

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## 12. Ecological Information

### Environmental Fate:

This material is expected to readily biodegrade. BOD (5 days) - 72%

### Environmental Toxicity:

430 ppm/ > 100 hr./goldfish/no effect/fresh water

654 ppm/ 6 hr./goldfish/killed/fresh water

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
(LACTIC ACID)

**Hazard Class:** 8

**UN/NA:** UN3265

**Packing Group:** II

**Information reported for product/size:** 150LB

### International (Water, I.M.O.)

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**Proper Shipping Name:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
(LACTIC ACID)

**Hazard Class:** 8

**UN/NA:** UN3265

**Packing Group:** II

**Information reported for product/size:** 150LB

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## 15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
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Ingredient                TSCA  EC   Japan
Australia
-----
Lactic Acid (50-21-5)     Yes   Yes   Yes
Yes

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-----\Chemical Inventory Status - Part 2\-----
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Ingredient                Korea  DSL   --Canada--
Phil.                    NDSL
-----
Lactic Acid (50-21-5)     Yes   Yes   No
Yes

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-----\Federal, State & International Regulations - Part 1\-----
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313-----
Ingredient                -SARA 302-  -----SARA
Chemical Catg.           RQ      TPQ      List
-----
Lactic Acid (50-21-5)     No      No      No
No

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-----\Federal, State & International Regulations - Part 2\-----
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TSCA-
Ingredient                CERCLA  261.33  8 (d)
-----
Lactic Acid (50-21-5)     No      No      No

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Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
 SARA 311/312: Acute: Yes      Chronic: No      Fire: Yes      Pressure: No  
 Reactivity: No      (Pure / Liquid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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## 16. Other Information

**NFPA Ratings:** Health: **3** Flammability: **1** Reactivity: **0**

**Label Hazard Warning:**

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT.  
HARMFUL IF SWALLOWED OR INHALED.

**Label Precautions:**

Do not get in eyes, on skin, or on clothing.

Do not breathe vapor or mist.

Store in a tightly closed container.

Use only with adequate ventilation.

Keep away from heat and flame.

Wash thoroughly after handling.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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