

MATERIAL SAFETY DATA SHEET (MSDS)**MATERIAL SAFETY DATA SHEET****EM SCIENCE****1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Manufacturer.....:**

EM SCIENCE
A Division of EM Industries
P.O. Box 70
480 Democrat Road
Gibbstown, N.J. 08027

Preparation Date.: 3/1/91**Information Phone Number.:** 856-423-6300**Hours:** Mon. to Fri. 8:30-5**Chemtrec Emergency Number:** 800-424-9300**Hours:** 24 hrs a day**Catalog Number(s):**

AX1475 AX1480

Product Name:

Aniline Blue

Synonyms:

Acid Blue 22, China Blue

Chemical Family:

Triarylmethane Dye

Formula: $C_{32}H_{25}N_3Na_2O_9S_3$ **Molecular Weight.:**

737.74

Harleco
Components of: LACTO - PHENOL
Cotton Blue-Amanns

Glycerine 400mL/L
Lactic Acid, 85% 200mL
Phenol 200g/L
Aniline Blue 0.04g/L

purchased prior to 1986

2. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS #	Appr %
Aniline Blue	28631-66-5	100%

3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

MAY BE HARMFUL IF SWALLOWED.

MAY BE IRRITATING TO SKIN, EYES AND MUCOUS MEMBRANES.

Appearance:

Dark blue powder

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

Symptoms of Exposure:

May be irritating on contact with skin, eyes, or mucous membranes. May be harmful if swallowed.

Medical Cond. Aggravated by Exposure:

Data not available.

Routes of Entry:

Inhalation, ingestion or skin contact.

Carcinogenicity:

The material is not listed (IARC, NTP, OSHA) as cancer causing agent.

4. FIRST AID MEASURES

Emergency First Aid:

GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE.

Skin: Wash thoroughly with soap and water.

Eyes: Immediately flush thoroughly with water for at least 15 minutes.

Inhalation: Remove to fresh air; give artificial respiration if breathing has stopped.

Ingestion: Get immediate medical attention; if conscious, give water freely.

5. FIRE FIGHTING MEASURES

Flash Point (F): N/A

Flammable Limits LEL (%): N/A

Flammable Limits UEL (%): N/A

Extinguishing Media:

Foam, water, carbon dioxide, dry powder.

Fire Fighting Procedures:

Wear self-contained breathing apparatus.

Fire & Explosion Hazards:

Thermal decomposition produces toxic fumes.

6. ACCIDENTAL RELEASE MEASURES

Spill Response:

Evacuate the area of all unnecessary personnel. Wear suitable protective equipment listed under Exposure / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Take up and containerize for proper disposal as described under Disposal. Comply with Federal, State, and local regulations on reporting releases. Refer to Regulatory Information for reportable quantity and other regulatory data.

7. HANDLING AND STORAGE

Handling & Storage:

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:

Ventilation, Respiratory Protection, Protective Clothing, Eye Protection:

Material should be handled or transferred in an approved fume hood or with adequate ventilation. Protective gloves should be worn to prevent skin contact (Neoprene or equivalent) Safety glasses with side shields should be worn at all times.

Work/Hygenic Practices:

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

EXPOSURE GUIDELINES

OSHA - PEL:

Component	TWA		STEL		CL		Skin
	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	
Aniline Blue							

ACGIH - TLV:

Component	TWA		STEL		CL		Skin
	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	
Aniline Blue							

If there are no exposure limit numbers listed in the Exposure Guidelines chart, this indicates that no OSHA or ACGIH exposure limits have been established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (C 760 mmHg) : N/A

Melting Point (C) : N/A

Specific Gravity (H₂O = 1) : N/A

Vapor Pressure (mm Hg) : N/A

Percent Volatile by vol (%) : N/A

Relative Density (Air = 1) : N/A

Evaporation Rate (BuAc = 1): N/A

Solubility in Water (%) : Soluble

Appearance :

Dark blue powder

10. STABILITY AND REACTIVITY

Solubility: Yes

Hazardous Polymerization:

Does not occur

Hazardous Decomposition:

CO, NO_x, SO_x

Conditions to Avoid:

None indicated

Materials To Avoid:

- ☐ Water
- ☐ Acids
- ☐ Bases
- ☐ Corrosives
- ☒ Oxidizers
- ☐ Other:

11. TOXICOLOGICAL INFORMATION

Toxicity Data

None Established

Toxicological Findings:

None

Cited in Registry of Toxic Effects of Chemical Substances (RTECS)

12. DISPOSAL CONSIDERATIONS

EPA Waste Numbers:

Treatment:

Material does not have an EPA Waste number and is not a listed waste, however consultation with a permitted waste disposal site (TSD) should be accomplished.

ALWAYS CONTACT A PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

13. TRANSPORT INFORMATION

DOT Proper Shipping Name:

non-regulated

DOT ID Number :

none

14. REGULATORY INFORMATION

TSCA Statement:

The CAS number of this product is listed on the TSCA Inventory.

Component	SARA EHS (302)	SARA EHS TPQ (lbs)	CERCLA RQ (lbs)
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Aniline Blue

Component	OSHA Floor List	SARA 313	DeMinimis for SARA 313 (%)
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Aniline Blue

If there is no information listed on the regulatory information chart, this indicates that the chemical is not covered by the specific regulation listed.

15. OTHER INFORMATION

Comments:

None

NFPA Hazard Ratings:

Health : 2
Flammability : 1
Reactivity : 0
Special Hazards :

Revision History: 7/1/83 10/27/87 5/2/90

| = Revised Section

N/A = Not Available

N/E = None Established

The statements contained herein are offered for informational purposes only and are based upon technical data that EM

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School Material Safety Data Sheet

Genium Publishing Corporation
1145 Catalyn Street
Schenectady, NY 12303-1836 USA
(518) 377-8855



No. 173

PHENOL

February 1987

SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME AND FORMULA: PHENOL; C_6H_5OH

SYNONYMS: Carboic Acid, Hydrobenzene, Oxybenzene, Phenic Acid, Phenyl Hydrate, Phenyl Hydroxide, Phenylic Acid, Phenyl Alcohol, Hydroxybenzene

CAS NUMBER: 0108-95-2

INGREDIENTS: Phenol; ca 100%

DOT CLASSIFICATION: Class B Poison

EPA CLASSIFICATION: Hazardous Substance/Waste; Priority Toxic Pollutant

MANUFACTURERS: Always request Material Safety Data Sheets from your chemical supplier. These should indicate the manufacturer of the substance and include an emergency phone number to call. The Manufacturers section of this book contains a listing of some of the larger manufacturers and available emergency numbers.

DESCRIPTION: Phenol is a white crystalline solid with a characteristic sharp, medicinal, sweet, tangy odor that is detectable above 0.05 ppm. Phenol turns pink or red if it contains impurities or if it is exposed to heat or light.

PRELIMINARY INFORMATION: Phenol is a very dangerous compound. It is a strong irritant of the skin as well as the eyes and mucous membranes. This material is toxic and may enter the body by inhalation, ingestion, or skin absorption. Absorption of phenol through 100 square inches of skin is enough to cause death in 90 seconds (ref. #509) if not quickly removed. This substance can be a moderate fire hazard, but its toxic properties present the most significant hazard. It has a "greater hazardous nature than potential usefulness" (ref. #511).



SECTION 2. USE AND STORAGE INFORMATION

- The following information is provided even though the use of Phenol is **NOT RECOMMENDED** in schools.

- PRELIMINARY PLANNING CONSIDERATIONS -

- Safety glasses or goggles and protective clothing (rubberized apron, etc.) should be worn for all experiments.
- Be sure eyewash station and safety shower are in good working order and readily available.
- For safety, contact lenses should not be worn in the laboratory; soft lenses may absorb and all lenses may concentrate irritants.
- Always provide for safe disposal of all chemical waste generated in the lab. Check applicable regulations prior to use.
- Eliminate all possible sources of ignition. Nearby electrical service and equipment should be explosion proof (no spark-generation potential).
- Whenever possible, substitute less hazardous materials.
- Rubber gloves are recommended when working with this material.
- Should not be handled by untrained persons. Phenol is a very dangerous compound. Review sections 3, 5, and 6 to be prepared for any emergencies.

- USAGE PRECAUTIONS AND PROCEDURES -

- READ THE LABEL and follow all precautions.
- Maintain good housekeeping practices to avoid unintentional mixing with incompatible materials.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- Keep away from strong oxidizing agents and sources of heat or ignition.
- Do not breathe vapors or allow liquid to contact skin - use only in a fume hood.
- Do not heat above 140°F (60°C). Inhalation of heated vapors is a very serious hazard.
- Be prepared to remove contaminated clothing immediately—do not reuse until properly laundered.

- ADDITIONAL INFORMATION -

- Material does not polymerize.
- Incompatible with strong oxidizing agents and halogens. Reaction with calcium hypochlorite is exothermic, producing toxic fumes which may ignite.
- Hot phenol is corrosive to many metals (Al, Pb, Zn, Mg, etc.). Reaction with them causes phenol to discolor.
- Purchase only amounts equivalent to one year's needs, if at all!
- No smoking in storage or use area.

- PREFERRED STORAGE LOCATION AND METHODS -

- Outside or detached storage is preferred. Storage area should not have heated surfaces, open flame, or ignition sources present.
- Do not store chemicals alphabetically by name; store by chemical family instead to keep compatibles together.
- Should be stored in approved, locked POISONS cabinet (health hazard).
- Storage area should be cool and well ventilated. Containers should be tightly closed.
- All chemical containers should be protected from physical damage and kept out of direct sunlight.

SECTION 3. SPILLS AND DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Evacuate unnecessary personnel. Notify appropriate administrator(s).
- Eliminate all possible sources of ignition. Nearby electrical service and equipment should be explosion proof (no spark-generation potential).
- Provide, maximum explosion-proof ventilation.
- Cleanup personnel should have protection against inhalation of vapors and eye or skin contact.
- Cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop into appropriate metal container for disposal in accordance with existing regulations. Flush spill area thoroughly with water; collect flushings and wash water for appropriate disposal.

DISPOSAL OF SMALL QUANTITIES:

- Diluted waste solutions may be treated with soda ash and neutralized before disposal. Small quantities of waste material may be burned in an approved incinerator if approved methods and applicable regulations are followed.
- Do not flush phenol down drains!

DISPOSAL OF LARGER AMOUNTS:

Contact a licensed disposal company.

*** FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL ***

SECTION 4: HEALTH HAZARDS

Phenol is not listed as a carcinogen by OSHA, IARC, or NTP.

Current OSHA PEL and ACGIH TLV: 8-hr. TWA: 5 ppm (19 mg/m³) (Skin)*

STEL is 10 ppm (38 mg/m³)

* Skin notation indicates a potential contribution to overall exposure via absorption through the skin.

- NIOSH recommends a 10 hr. TWA of 20 mg/m³ with a ceiling of 60 mg/m³ for any 15-minute period.

- Human, Oral, LDLo: 140 mg/kg

- Rat, Oral, LDLo: 414 mg/kg

- Rat, Skin, LD₅₀: 699 mg/kg

- Phenol is a general protoplasmic poison that is corrosive to body tissue. Poisoning can occur via skin absorption, vapor inhalation, or ingestion.

- Vapors of phenol are irritating to the eyes, nose, and throat.

- Contact with the skin causes a white, wrinkled discoloration followed by a severe burn or systemic poisoning if not properly removed. The liquid is rapidly absorbed through the skin (see sect. 1). Intense burning and pain from skin contact may be delayed. Absorption of phenol through the skin may cause sudden collapse or death. Symptoms develop rapidly.

- When ingested, phenol causes burning of the GI tract and blotches on the lips and in the mouth.

- Headache, nausea, dizziness, dyspnea, shock, convulsions, and death may follow exposures by any route.

- Chronic exposure to low concentrations of phenol may cause digestive disturbances, nervous disorders, skin eruptions, and death due to liver and kidney damage.

- The TLV is set to prevent systemic poisoning.

SECTION 5: FIRST AID PROCEDURES

Eye contact:

- Flush eyes promptly with plenty of running water for at least 30 minutes, including under the eyelids.

- Get prompt medical attention.*

Skin contact:

- Flush affected area with large amounts of water for 30 minutes while removing contaminated clothing and shoes.

- Get prompt medical attention.*

Inhalation:

- Remove victim to fresh air; restore and/or support breathing as necessary. Keep him warm and quiet.

- Transport victim to a medical facility.

Ingestion:

- Give at least three glasses of milk or water to drink. Induce vomiting – but ONLY if victim is conscious and alert. (Vomiting may be induced by touching finger to back of throat.)

- Never give anything by mouth to a person who is unconscious or convulsing.

- Contact a physician or poison control center and transport victim to a medical facility.

* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

SECTION 6: FIRE PROCEDURES AND DATA

- Phenol presents a moderate fire hazard when exposed to heat, flame, or oxidizers.

- When heated, phenol emits toxic fumes and vapors that will form explosive mixtures in air.

- Solid phenol burns with difficulty, giving off a heavy smoke.

- Water containing phenol can cause severe chemical burns.

- Extinguishing media: carbon dioxide, dry chemical, or alcohol type foam.

- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus are recommended.

- Use of a direct water stream may scatter and spread fire.

- A water spray may be used to cool fire-exposed containers and disperse vapors.

THERMAL DECOMPOSITION (OR BURNING) PRODUCTS: Water and oxides of carbon

FLASH POINT AND METHOD(S) ... 175°F (79°C) (CC)

AUTOIGNITION TEMPERATURE ... 1319°F (715°C)

FLAMMABILITY LIMITS IN AIR (vol. %):

Lower ... 1.5

Upper ... 8.6

SECTION 7: PHYSICAL DATA

BOILING POINT (@ 1 atm.) ... 359.4°F (181.9°C)

VISCOSITY CPS, @80°C ... 1.51

VAPOR PRESSURE (@ 25°C, mm Hg) ... 0.35

VAPOR DENSITY (air=1) ... 3.24

% VOLATILE (@ 20°C) ... ca 100

SOLUBILITY IN WATER (@ 20°C) ... 8.4 (% by wt.) [sol. in all proportions at temp. > 151°F (>66°C)]

SPECIFIC GRAVITY (H₂O=1) ... Solid: 1.017@25°/4°C;
(Liquid 1.0576 @ 41°/4°C)

MELTING POINT ... 109.4°F (43°C)

MOLECULAR WEIGHT ... 94.12

EVAPORATION RATE (BuAc=1) ... <50.03

DATA SOURCES: Genium's Industrial MSDS #355 (9/85) and references 2-12, 15, 19, 23-24, 31, 34, 37-38, 59, 79, 82, 501, 509, 510, 511.
(see glossary for titles)

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N

Approvals:

Author

Indust. Hygiene/Safety

Medical Review

G7



Material Safety Data Sheet

Ashland Chemical Co.

Date Prepared: 01/26/98

Date Printed: 06/21/99

MSDS No: 999.0010857-004.004I

GLYCERINE 96% TECH

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: GLYCERINE 96% TECH

General or Generic ID: POLYOL

Company

Ashland Chemical Co.
P.O. Box 2219
Columbus, OH 43216
614-790-3333

Emergency Telephone Number:

1-800-ASHLAND (1-800-274-5263)
24 hours everyday

Regulatory Information Number:

1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
GLYCERINE	56-81-5	94.0- 98.0
WATER		2.0- 6.0

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

May cause mild eye irritation. Symptoms include stinging, tearing, and redness.

Skin

May cause mild skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, drying and cracking of skin, and skin burns.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Inhalation

Breathing of vapor or mist is possible.

Symptoms of Exposure

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may

include: stomach or intestinal upset (nausea, vomiting, diarrhea)
irritation (nose, throat, airways).

Target Organ Effects

No data

Developmental Information

No data

Cancer Information

No data

Other Health Effects

No data

Primary Route(s) of Entry

Inhalation, Skin contact.

4. FIRST AID MEASURES

Eyes

If symptoms develop, move individual away from exposure and into fresh air. Flush eyes gently with water while holding eyelids apart. If symptoms persist or there is any visual difficulty, seek medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Swallowing

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Note to Physicians

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions).

5. FIRE FIGHTING MEASURES

Flash Point

320.0 F (160.0 C)

Explosive Limit

Not applicable

Autoignition Temperature

No data

Hazardous Products of Combustion

May form: acrolein, carbon dioxide and carbon monoxide.

Fire and Explosion Hazards

No special fire hazards are known to be associated with this product.

Extinguishing Media

alcohol foam, water fog, carbon dioxide, dry chemical.

Fire Fighting Instructions

Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

NFPA Rating

Health - 1, Flammability - 1, Reactivity - 0

6. ACCIDENTAL RELEASE MEASURES

Small Spill

Absorb liquid on vermiculite, floor absorbent, or other absorbent material and transfer to hood.

Large Spill

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection

Chemical splash goggles in compliance with OSHA regulations are

advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin Protection

Wear resistant gloves such as: natural rubber, To prevent repeated or prolonged skin contact, wear impervious clothing and boots..

Respiratory Protections

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Exposure Guidelines

Component

GLYCERINE (56-81-5)

OSHA VPEL 5.000 mg/m3 - TWA respirable fraction

OSHA VPEL 10.000 mg/m3 - TWA total dust

ACGIH TLV 10.000 mg/m3 - TWA (total dust/particulate)

WATER

No exposure limits established

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point

(for component) 340.0 F (171.1 C) @ 760 mmHg

Vapor Pressure

(for component) 3.000 mmHg @ 68.00 F

Specific Vapor Density

> 1.000 @ AIR=1

Specific Gravity

1.255 @ 68.00 F

Liquid Density

10.460 lbs/gal @ 68.00 F

1.255 kg/l @ 20.00 C

Percent Volatiles

4.0 %

Evaporation Rate

SLOWER THAN ETHYL ETHER

Appearance

No data

State

LIQUID

Physical Form

HOMOGENEOUS SOLUTION

Color

CLEAR, APHA COLOR 10 MAX

Odor

No data

pH

Not applicable

10. STABILITY AND REACTIVITY

Hazardous Polymerization

Product will not undergo hazardous polymerization.

Hazardous Decomposition

May form: acrolein, carbon dioxide and carbon monoxide.

Chemical Stability

Stable.

Incompatibility

Avoid contact with: strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

No data

12. ECOLOGICAL INFORMATION

No data

13. DISPOSAL CONSIDERATION

Waste Management Information

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:

NON-REGULATED BY D.O.T.

Container/Mode:

55 GAL DRUM/TRUCK PACKAGE

NOS Component:

None

RQ (Reportable Quantity) - 49 CFR 172.101
Not applicable

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)
None listed

SARA 302 Components - 40 CFR 355 Appendix A
None

Section 311/312 Hazard Class - 40 CFR 370.2
Immediate() Delayed() Fire() Reactive() Sudden
Release of Pressure()

SARA 313 Components - 40 CFR 372.65
None

International Regulations

Inventory Status
Not determined

State and Local Regulations

California Proposition 65
None

Pennsylvania RTK Label Information
1,2,3-PROPANETRIOL

56-81-5

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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MSDS**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Plymptonburg, NJ 05865

MALLINCKRODT

24 Hour Emergency Telephone: 800-369-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CAUTEC: 015-993-4060

Outside U.S. and Canada
Chemtrec 202 488 7816

NOTE: CHEMTREC, CAUTEC and National
Response Center emergency numbers to be
used only in the event of chemical emergencies
involving a spill, leak, fire, exposure or accident
involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-562-2537) for assistance

LACTIC ACID

MSDS Number: L0522 --- *Effective Date: 03/16/98*

1. Product Identification

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

CAS No.: 50-21-5

Molecular Weight: 90.08

Chemical Formula: CH₃CHOHCOOH

Product Codes:

J.T. Baker: 0194, 0196

Mallinckrodt: 2672, 2676

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
-----	-----	-----	-----
Lactic Acid	50-21-5	100%	Yes

3. Hazards Identification

Emergency Overview

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

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Corrosive)

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

Storage Color Code: White (Corrosive)

Potential Health Effects

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.

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.

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.

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!

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.

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, 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.

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.

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.

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	---NTP Carcinogen---		IARC Category
	Known	Anticipated	

Lactic Acid (50-21-5)	No	No	None

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

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.

14. Transport Information

Not regulated.

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Lactic Acid (50-21-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	DSL	Canada-- NDSL	Phil.
Lactic Acid (50-21-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302- RQ	TPQ	-SARA 313- List	Chemical Catg.
Lactic Acid (50-21-5)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Lactic Acid (50-21-5)	No	No	No

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: No information found.

Poison Schedule: No information found.

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.

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:

MSDS Section(s) changed since last revision of document include: 3, 16.

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