

# East Hampton > High School > Biology > Biology Lab- Room

54

3/3/2011

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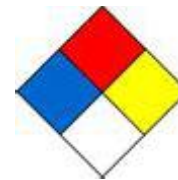
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## Material Safety Data Sheet



# T B E BUFFER

**Revised:** 07/13/2010  
**Replaces:** 05/09/2010  
**Printed:** 08/02/2010

**Carolina Biological Supply Company**

2700 York Rd | Burlington, NC 27215 • to order: 800.334.5551 • for support: 800.227.1150

**CAROLINA**  
 www.carolina.com

### Section 1 - Product Description

**Product Name:** T B E Buffer

**Product Code(s):** 21-9025, 21-9027

**Size:** 150 mL, 500 mL

**Chemical Name:** Tris Borate EDTA

**CAS Number:** See Section 3

**Formula:** See Section 3

**Synonyms:** Electrophoresis Buffer

**Distributor:** Carolina Biological Supply Company, 2700 York Road, Burlington, NC 27215

**Chemical Information:** 800-227-1150 (8am-5pm (ET) M-F) **Chemtrec** 800-424-9300 (Transportation Spill Response 24 hours)

### Section 2 - Hazard Identification

**Emergency Overview:** Non-Hazardous under normal use.

**Potential Health Effects:**

**Eyes:** May cause irritation.

**Skin:** Irritating to skin.

**Ingestion:** Harmful if swallowed.

**Inhalation:** Irritating to respiratory system.

### Section 3 - Composition / Information on Ingredients

**Principal Hazardous Components:** Ethylenediaminetetraacetic acid (EDTA) disodium sa; Sodium hydrozide (CAS# 1310-73-2) 0.10%; Tris (hydroxymethyl) aminomethane (CAS# 77-86-1) 1; Boric Acid (CAS# 100043-35-3) 5.5%

**TLV units:** Boric Acid: ACGIH-TLV 6 mg/m<sup>3</sup> (STEL) (inhalable fraction - listed under Borate Compounds, inorganic)

Boric Acid: ACGIH-TLV 2 mg/m<sup>3</sup> (TWA) (inhalable fraction - listed under Borate Compounds, inorganic)

**PEL units:** Sodium hydroxide: OSHA-PEL 2 mg/m<sup>3</sup> (TWA)

Boric Acid: N/A

### Section 4 - First Aid Measures

**Emergency and First Aid Procedures:**

**Eyes** - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Skin** - After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of ... (Water, unless specified as a water reactive material).

**Ingestion** - If swallowed, seek medical advice immediately and show this container or label.

**Inhalation** - In case of accident by inhalation: remove casualty to fresh air and keep at rest.

## Section 5 - Firefighting Procedures

**Flash Point (Method Used):** N/A

**NFPA Rating:**

**Health:** 2

**Fire:** 1

**Reactivity:** 1

**Extinguisher Media:** Use dry chemical, CO2 or appropriate foam.

**Flammable Limits in Air % by Volume:** N/A

**Autoignition Temperature:** N/A

**Special Firefighting Procedures:** Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.

**Unusual Fire and Explosion Hazards:** N/A

## Section 6 - Spill or Leak Procedures

**Steps to Take in Case Material Is Released or Spilled:** Ventilate area of spill. Eliminate all sources of ignition. Remove all non-essential personnel from area. Clean-up personnel should wear proper protective equipment and clothing. Absorb material with suitable absorbent and containerize for disposal.

## Section 7 - Special Precautions

**Precautions to Take in Handling or Storing:** Keep container tightly closed in a cool, well-ventilated place. Keep container tightly closed in a cool, well-ventilated place.

## Section 8 - Protection Information

**Respiratory Protection (Specify Type):** None needed under normal conditions of use with adequate ventilation. A NIOSH/MSHA chemical cartridge respirator should be worn if PEL or TLV is exceeded.

**Ventilation:**

**Local Exhaust:** Yes

**Mechanical(General):** Yes

**Special:** No

**Other:** No

**Protective Gloves:** Natural rubber, Neoprene, PVC or equivalent.

**Eye Protection:** Splash proof chemical safety goggles should be worn.

**Other Protective Clothing or Equipment:** Lab coat, apron, eye wash, safety shower.

## Section 9 - Physical Data

**Molecular Weight:** N/A

**Boiling Point:** N/A

**Vapor Density(Air=1):** N/A

**Percent Volatile by Volume:** N/A

**Solubility in Water:** Soluble

**Melting Point:** N/A

**Vapor Pressure:** N/A

**Specific Gravity (H2O=1):** N/A

**Evaporation Rate (BuAc=1):** N/A

**Appearance and Odor:** Colorless, odorless solution.

## Section 10 - Reactivity Data

**Stability:** Stable

**Conditions to Avoid:** N/A

**Incompatibility (Materials to Avoid):** Water-reactive Material,  
**Hazardous Decomposition Products:** N/A  
**Hazardous Polymerization:** Will not occur

## Section 11 - Toxicity Data

**Toxicity Data:** EDTA: orl-rat LD50 1658 mg/kg  
 Sodium Hydroxide: Dermal Rabbit LD50 1350 mg/kg  
 Tris: orl-rat L50 5900 mg/kg  
 Boric Acid: orl-rat LD50 2660 mg/kg

**Effects of Overexposure:**

**Acute:** See Section 2

**Chronic:** Reproductive data cited. Mutation data cited. Not listed as a carcinogen by IARC, NTP or OSHA.

**Conditions Aggravated by Overexposure:** N/A

**Target Organs:** N/A

**Primary Route(s) of Entry:** Ingestion, Skin contact.

## Section 12 - Ecological Data

**EPA Waste Numbers:** N/A

## Section 13 - Disposal Information

**Waste Disposal Methods:** Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

## Section 14 - Transport Information

**DOT Proper Shipping Name:** N/A

## Section 15 - Regulatory Information

**EPA TSCA Status:** On TSCA Inventory

**Hazard Category for SARA Section 311/312 Reporting:** Acute

**Name List:**

Ethylenediaminetetraacetic acid (EDTA), disodium salt - No  
 Sodium hydroxide - No  
 Tris (hydroxymethyl) aminomethane - No  
 Boric Acid - No

**Chemical Category:**

Ethylenediaminetetraacetic acid (EDTA), disodium salt - No  
 Sodium hydroxide - No  
 Tris (hydroxymethyl) aminomethane - No  
 Boric Acid - No

**CERCLA Section 103 RQ(lb.):** Ethylenediaminetetraacetic acid (EDTA), disodium salt - No

Sodium hydroxide - 1000lbs

Tris (hydroxymethyl) aminomethane - No

Boric Acid - No

**RCRA Section 261.33:** Ethylenediaminetetraacetic acid (EDTA), disodium salt - No

Sodium hydroxide - No

Tris (hydroxymethyl) aminomethane - No

Boric Acid - No

## Section 16 - Additional Information

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. Any employer must carefully assess the applicability of any information contained herein in regards to the particular use to which the employer puts the material.

### Glossary

ACGIH	American Conference of Governmental Industrial Hygienists
CAS Number	Chemical Services Abstract Number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation
IARC	International Agency of Research on Cancer
N/A	Not Available
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act



**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 05/31/2006

**1 Identification of substance:**

· **Product details:**

· **Trade name:** 50X Tris/Acetic Acid/EDTA Buffer 11210<sup>?</sup>

· **Catalog or product number:**

1610743, 1610773, 9704629, 9703685, 9702659, 1660742, 1660742EDU, 1610743EDU, 1610773EDU

· **Application of the substance / the preparation:** Laboratory chemicals

· **Manufacturer/Supplier:**

Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547

(510)741-1000

· **Information department:** Technical services, customer support.

· **Emergency information:**

1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.  
510-741-1000

**2 Composition/Information on components:**

· **Chemical characterization**

· **Description:** Mixture of the substances listed below with non-hazardous additions.

· **Listing of dangerous and non-hazardous components:**

CAS: 7732-18-5 EINECS: 231-791-2 RTECS: ZC 0110000	water		50-100%
CAS: 77-86-1 EINECS: 201-064-4 RTECS: TY 2900000	Tris(hydroxymethyl)aminomethane	Xn; R 22-36	20-35%
CAS: 127-09-3 EINECS: 204-823-8	sodium acetate		10-20%
CAS: 6381-92-6 RTECS: AH 4375000	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn; R 22-36/37/38	1.0-2.5%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

**3 Hazards identification**

· **Emergency overview:**

Xn Harmful

· **Routes of exposure:** Ingestion

· **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 22 Harmful if swallowed.

· **Classification system**

The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

· **OSHA hazard ratings**

· **Health 2:** Moderate hazard.

USA

(Contd. on page 2)

## Material Safety Data Sheet

Printing date 07/29/2006

Reviewed on 05/31/2006

Trade name: 50X Tris/Acetic Acid/EDTA Buffer

(Contd. of page 1)

## \* 4 First aid measures

· **General information**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing** Immediately call a doctor.

## 5 Fire fighting measures

· **Suitable extinguishing agents**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Protective equipment:** No special measures required.

## \* 6 Accidental release measures

· **Person-related safety precautions:** Not required· **Measures for environmental protection:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

· **Measures for cleaning/collecting:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

## \* 7 Handling and storage

· **Handling**

· **Information for safe handling:** No special precautions are necessary if used correctly.

· **Information about protection against explosions and fires:** No special measures required.

· **Storage**

· **Requirements to be met by storerooms and receptacles:** According to product specification

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:** None.

## \* 8 Exposure controls and personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Personal protective equipment**· **General protective and hygienic measures**

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

· **Breathing equipment:** Not required.

(Contd. on page 3)

USA

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 05/31/2006

**Trade name: 50X Tris/Acetic Acid/EDTA Buffer**

(Contd. of page 2)

**Protection of hands:**

Synthetic gloves  
Protective gloves.

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Synthetic gloves

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:** Safety glasses

**9 Physical and chemical properties:**

**General Information**

**Form:** liquid  
**Color:** Colorless  
**Odor:** Odorless

**Change in condition**

**Melting point/Melting range:** undetermined  
**Boiling point/Boiling range:** 100°C

**Flash point:** Not applicable

**Auto igniting:** Product is not selfigniting.

**Danger of explosion:** Product does not present an explosion hazard.

**Vapor pressure at 20°C:** 23.0 hPa

**Density:** Not determined

**Solubility in / Miscibility with**

**Water:** Fully miscible

**pH-value at 20°C:** 7.1

**Solvent content:**

**Organic solvents:** 0.0 %  
**Water:** 60.3 %

**Solids content:** 39.7 %

**10 Stability and reactivity**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Dangerous reactions** No dangerous reactions known

**Dangerous products of decomposition:** No dangerous decomposition products known

— USA —

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 05/31/2006

**Trade name: 50X Tris/Acetic Acid/EDTA Buffer**

(Contd. of page 3)

**11 Toxicological information**

· **Acute toxicity:**

· **LD/LC50 values for hazardous components per OSHA criteria:**

**77-86-1 Tris(hydroxymethyl)aminomethane**

Oral | LD50 | 5900 mg/kg (rat)

**127-09-3 sodium acetate**

Oral | LD50 | 3530 mg/kg (rat)

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** No irritant effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Harmful

**12 Ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**13 Disposal considerations**

· **Product:**

· **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

· **DOT regulations:**

· **Hazard class:** -

· **Land transport ADR/RID (cross-border)**

· **ADR/RID class:** -

· **Maritime transport IMDG:**

· **IMDG Class:** -

· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:** -

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 05/31/2006

Trade name: 50X Tris/Acetic Acid/EDTA Buffer

(Contd. of page 4)

**15 Regulations**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

7732-18-5 water

77-86-1 Tris(hydroxymethyl)aminomethane

127-09-3 sodium acetate

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Markings according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**

Xn Harmful

· **Risk phrases:**

22 Harmful if swallowed.

· **Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36 Wear suitable protective clothing.

60 This material and its container must be disposed of as hazardous waste.

· **National regulations**

· **Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.**

**16 Other information:**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

(Contd. on page 6)

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 05/31/2006

**Trade name: 50X Tris/Acetic Acid/EDTA Buffer**

(Contd. of page 5)

· **Department issuing MSDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 724-7000

· **\* Data compared to the previous version altered.**

USA

# MSDS Document

## Product Acetic Acid 45%

### 1. Chemical Product and Company Identification

**Trade Name of this Product** Acetic Acid 45%

**Synonyms:** Acetic Acid 45% Car, PHOSPHOROUS ENRICHMENT STOCK SOLUTION

**MSDS ID** MSDS01400

**Manufacturer**

Carolina Biological Supply Company  
2700 York Road  
Burlington, NC 27215

**Phone Number**

(800) 227-1150

**Emergency Phone**

CHEMTREC (800) 424-9300

CHEMTREC International (703) 527-3887

**Revision Date** 8/12/1994

### 2. Composition and Information on Ingredients

Ingredient	CAS Number	Weight %	ACGIH TLV	PEL	STEL
ACETIC ACID (CERCLA)	64-19-7		0		

### 3. Hazard Identification

Route Of Entry Inds - Inhalation: YES Skin: NO Ingestion: YES  
Carcinogenicity Inds - NTP: NO IARC: NO OSHA: NO  
Health Hazards Acute And Chronic: TARGET ORGANS:EYES, SKIN, TEETH, RESPIRATORY & GI TRACTS. ACUTE- CORROSIVE. INHALE:EXTREMELY IRRITATING. MAY CAUSE DELAYED LUNG INJURY. EYES:CAUSES SEVERE BURNS. VAPORS EXTREMELY IRRITATING. SKIN:CAUSES SEVERE BURNS. ORAL:MAY BE FATAL. DAMA GING TO MUCOUS MEMBRANES. CHRONIC- MAY CAUSE EROSION OF TEETH, LUNG INFLAMMATION  
Explanation of Carcinogenicity: NONE  
Signs and Symptoms of Overexposure: SEVERE IRRITATION, SEVERE BURNS, PAIN, TEARING, COUGHING, NAUSEA, VOMITING, DARKENING OF SKIN, EROSION OF TEETH  
Medical Conditions Aggravated by Overexposure: PERSONS WITH PRE-EXISTING SKIN DISORDERS, EYE PROBLEMS OR IMPAIRED RESPIRATORY FUNCTION MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS PRODUCT.

### 4. First Aid Information

GET MEDICAL HELP IMMEDIATELY. INHALED: MOVE TO FRESH AIR. PROVIDE CPR/OXYGEN IF NEEDED. EYES/SKIN: IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 15 MINUTES. HOLD EYELIDS OPEN. REMOVE CONTAMINATED CLOTHING. ORAL: DO NOT

INDUCE VOMITING. IF CONSCIOUS, WASH MOUTH OUT WITH WATER & DRINK A GLASS OF WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

## 5. Fire Fighting Measures

<b>Flash Point</b>	103F,39C
<b>LEL</b>	6.6
<b>UEL</b>	19.3

Flash Point Text: 103F,39C

Auto Ignition Temperature Text:

Lower Limits: 6.6% Upper Limits: 19.3%

Extinguishing Media: DRY CHEMICAL, CARBON DIOXIDE, ALCOHOL FOAM, WATER SPRAY. USE WATER SPRAY TO KEEP FIRE-EXPOSED CONTAINERS COOL.

Fire Fighting Procedures: WEAR PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS. HAZARDOUS DECOMPOSITION PRODUCTS MAY BE FORMED.

Unusual Fire/Explosion Hazard: FLAMMABLE AND CORROSIVE. CONTAINER MAY RUPTURE.

## 6. Accidental Release Measures

Spill Release Procedures: WEAR PROTECTIVE EQUIPMENTS. VENTILATE AREA. REMOVE IGNITION SOURCES. COVER SPILL WITH LIME, SODA ASH. ABSORB WITH VERMICULITE. PLACE IN A CONTAINER FOR DISPOSAL. CLEAN SURFACE THOROUGHLY AFTER PICK UP IS COMPLETE. PREVENT RUNOFF FROM ENTERING SEWERS.

Neutralizing Agent: SODIUM BICARBONATE, LIME, SODA ASH

Waste Disposal Methods: DISCHARGE, TREATMENT OR DISPOSAL IS SUBJECT TO FEDERAL, STATE OR LOCAL REGULATIONS. RECYCLING/BIOLOGICAL TREATMENT/INCINERATION IS RECOMMENDED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUE, FOLLOW LABEL WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

## 7. Handling and Storage

KEEP CONTAINER TIGHTLY CLOSED. STORE IN COOL, VENTILATED AREA, AWAY FROM INCOMPATIBLE MATERIALS AND SOURCES OF IGNITION. AVOID FREEZING PRODUCT.

## 8. Exposure Controls and Personal Protection

Respiratory Protection: IF ENGINEERING CONTROLS DO NOT MAINTAIN AIRBORNE CONCENTRATIONS BELOW TLV/PEL, A NIOSH-APPROVED ORGANIC VAPOR, ACID GAS RESPIRATOR MUST BE WORN. A PROGRAM SHOULD BE INSTITUTED TO ASSURE COMPLIANCE WITH OSHA STANDARD 29 CFR 1910.134.

Ventilation: GOOD GENERAL VENTILATION (TYPICALLY 10 AIR CHANGES/HR) SHOULD BE USED. VENTILATION RATES SHOULD BE MATCHED TO CONDITIONS

Protective Gloves: PVC, RUBBER

Eye Protection: SAFETY GLASSES WITH SIDE SHIELDS/GOGGLES

Other Equipment: SAFETY SHOWER AND EYE WASH FOUNTAIN SHOULD BE LOCATED NEARBY. WEAR APPROPRIATE PROTECTIVE CLOTHING FOR RISK OF EXPOSURE.

Work Hygienic Practices: SAFETY SHOWER AND EYE WASH FOUNTAIN SHOULD BE LOCATED NEARBY. WEAR APPROPRIATE PROTECTIVE CLOTHING FOR RISK OF EXPOSURE.

Supplemental Safety & Health: N/P



## 9. Physical and Chemical Properties

Specific Gravity 2.1

HCC: F6

Boiling Point:  
239F,115C

Melting/Freezing Point:  
63.0F,17.2C

Decomposition Temp:  
UNKNOWN

Vapor Pressure: 11.4 @ 68F Vapor Density: 2.1

Specific Gravity: 1.05

PH: 2.4 6%

Viscosity: 1.2 CP @ 68F

Evaporation Rate & Reference: 0.97 (N-BUTYL ACETATE=1)

Solubility in Water: COMPLETE

Appearance and Odor: CLEAR, COLORLESS LIQUID - SHARP, VINEGAR, PUNGENT ODOR

Percent Volatiles by Volume: 100

Corrosion Rate: UNKNOWN

## 10. Stability and Reactivity

Stability Indicator: YES

Stability Conditions to Avoid: FLAMES AND OTHER SOURCES OF IGNITION

Materials to Avoid: STRONG OXIDIZING AGENTS, STRONG BASES, AMINES

Hazardous Decomposition Products: CARBON MONOXIDE, CARBON DIOXIDE

Hazardous Polymerization Products: NO

Conditions to Avoid Polymerization: NOT RELEVANT

## 11. Toxicological Information

N/P

## 12. Ecological Information

N/P

## 13. Disposal Considerations

DISCHARGE, TREATMENT OR DISPOSAL IS SUBJECT TO FEDERAL, STATE OR LOCAL REGULATIONS. RECYCLING/BIOLOGICAL TREATMENT/INCINERATION IS RECOMMENDED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUE, FOLLOW LABEL WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

## 14. Transportation Information

N/P

## 15. Regulatory Information

SARA Title III: N/P

Federal Regulatory: N/P

## 16. Other Information

MSDS Number: **B5631** \* \* \* \* \* *Effective Date: 08/10/04* \* \* \* \* \* *Supersedes: 11/02/01*



From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. And Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC 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 (1-800-582-2537) for assistance.

## Buffer Solution (Phosphate), pH 7

### 1. Product Identification

**Synonyms:** None

**CAS No.:** Not applicable to mixtures.

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** Not applicable to mixtures.

**Product Codes:** 5608

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Potassium Phosphate Monobasic	7778-77-0	< 1%	No
Sodium Phosphate, Dibasic	7558-79-4	< 1%	No
Water	7732-18-5	> 99%	No

### 3. Hazards Identification

**Emergency Overview**

**As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.**

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

---

Health Rating: 0 - None

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 0 - None

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Orange (General Storage)

---

### **Potential Health Effects**

---

#### **Inhalation:**

No adverse health effects via inhalation.

#### **Ingestion:**

Not expected to be a health hazard via ingestion. Large oral doses may cause irritation to the gastrointestinal tract.

#### **Skin Contact:**

Not expected to be a health hazard from skin exposure.

#### **Eye Contact:**

No adverse effects expected.

#### **Chronic Exposure:**

No information found.

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

No information found.

---

## **4. First Aid Measures**

Not expected to require first aid measures.

#### **Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

#### **Ingestion:**

If large amounts were swallowed, give water to drink and get medical advice.

#### **Skin Contact:**

Wash exposed area with soap and water. Get medical advice if irritation develops.

#### **Eye Contact:**

Wash thoroughly with running water. Get medical advice if irritation develops.

---

## **5. Fire Fighting Measures**

#### **Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

Use protective clothing and breathing equipment appropriate for the surrounding fire.

---

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. 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.

---

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. 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:**

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

**Personal Respirators (NIOSH Approved):**

Not expected to require personal respirator usage.

**Skin Protection:**

Wear protective gloves and clean body-covering clothing.

**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:**

Clear, colorless liquid.

**Odor:**

Odorless.

**Solubility:**

Complete (100%)

**Specific Gravity:**

No information found.

**pH:**

7

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

ca. 99

**Boiling Point:**

No information found.

**Melting Point:**

No information found.

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

Not applicable.

**Vapor Pressure (mm Hg):**

Not applicable.

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

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

No information found.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

No information found.

**Conditions to Avoid:**

Heat.

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Potassium Phosphate Monobasic (7778-77-0)	No	No	None

Sodium Phosphate, Dibasic (7558-79-4)	No	No	None
Water (7732-18-5)	No	No	None

## 12. Ecological Information

### Environmental Fate:

No information found.

### Environmental Toxicity:

No information found.

## 13. Disposal Considerations

Dilute with water and flush to sewer if local ordinances allow, otherwise, whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. 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
-----
Potassium Phosphate Monobasic (7778-77-0)     Yes   Yes   Yes    Yes
Sodium Phosphate, Dibasic (7558-79-4)         Yes   Yes   Yes    Yes
Water (7732-18-5)                             Yes   Yes   Yes    Yes
```

```
-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  DSL   NDSL   Phil.
-----
Potassium Phosphate Monobasic (7778-77-0)     Yes   Yes   No     Yes
Sodium Phosphate, Dibasic (7558-79-4)         Yes   Yes   No     Yes
Water (7732-18-5)                             Yes   Yes   No     Yes
```

```
-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ   TPQ   List  Chemical Catg.
```

Potassium Phosphate Monobasic (7778-77-0)	No	No	No	No
Sodium Phosphate, Dibasic (7558-79-4)	No	No	No	No
Water (7732-18-5)	No	No	No	No

Ingredient	CERCLA	Part 2\ -RCRA-	Part 2\ -TSCA-
Potassium Phosphate Monobasic (7778-77-0)	No	261.33	8(d)
Sodium Phosphate, Dibasic (7558-79-4)	5000	No	No
Water (7732-18-5)	No	No	No

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

## 16. Other Information

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

**Label Hazard Warning:**

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

**Label Precautions:**

None.

**Label First Aid:**

Not applicable.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

\*\*\*\*\*

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\*\*\*\*\*

**Prepared by:** Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)



MSDS #: 154.00

Revision Date: May 18, 2005

---

### Section 1 — Chemical Product and Company Identification

---

## Buffer Solution (Concentrated) pH 4.00

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

---

### Section 2 — Composition, Information on Ingredients

---

Potassium hydrogen phthalate (877-24-7) <5%, and Water (7732-18-5) >95%.

CAS#: None Established

---

### Section 3 — Hazards Identification

---

Clear, odorless liquid.  
May be irritating to eyes and skin.

#### FLINN AT-A-GLANCE

Health-0  
Flammability-0  
Reactivity-0  
Exposure-1  
Storage-0

0 is low hazard, 3 is high hazard

---

### Section 4 — First Aid Measures

---

Call a physician, seek medical attention for further treatment, observation and support after first aid.  
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.  
Eye: Immediately flush with fresh water for 15 minutes.  
External: Wash continuously with fresh water for 15 minutes.  
Internal: Give large quantities of water. Call a physician or poison control at once.

---

### Section 5 — Fire Fighting Measures

---

Non flammable, non combustible liquid.

#### NFPA CODE

None  
Established

---

### Section 6 — Accidental Release Measures

---

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

---

### Section 7 — Handling and Storage

---

Flinn Suggested Chemical Storage Pattern: Inorganic Miscellaneous. Store with other buffers.

---

### Section 8 — Exposure Controls, Personal Protection

---

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

## Material Safety Data Sheet (MSDS)

### Section 9 — Physical and Chemical Properties

Clear, odorless liquid.  
Contains buffer and distilled water (Potassium Hydrogen Phthalate).

### Section 10 — Stability and Reactivity

Avoid heat.  
Shelf life: Fair.

### Section 11 — Toxicological Information

Acute effects: Mild irritant	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

### Section 12 — Ecological Information

Data not yet available.

### Section 13 — Disposal Considerations

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #26b is one option.

### Section 14 — Transport Information

Shipping Name: Not regulated  
Hazard Class: N/A  
UN Number: N/A

N/A = Not applicable

### Section 15 — Regulatory Information

Not listed.

### Section 16 — Other Information

Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

**FLINN SCIENTIFIC INC.**

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Use Flinn Chemicals*

flinn@flinnsci.com www.flinnsci.com  
P.O. Box 219 Batavia IL 60510  
(800) 452-1261 Fax (866) 452-1436

---

### Section 1 — Chemical Product and Company Identification

---

#### Buffer Solution (Concentrated) pH 7.00

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

---

### Section 2 — Composition, Information on Ingredients

---

Potassium Phosphate, monobasic (13761-79-0) <16%, Sodium Hydroxide (1330-43-4) 3%, and Water (7732-18-5) >81%.

CAS#: None Established

---

### Section 3 — Hazards Identification

---

Clear odorless liquid.

Substance not considered hazardous. However, not all health aspects of this substance have been thoroughly investigated.

#### FLINN AT-A-GLANCE

Health-0  
Flammability-0  
Reactivity-0  
Exposure-0  
Storage-0

0 is low hazard, 3 is high hazard

---

### Section 4 — First Aid Measures

---

Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Give large quantities of water. Call a physician or poison control at once.

---

### Section 5 — Fire Fighting Measures

---

Non flammable, non combustible liquid.

#### NFPA CODE

None Established

---

### Section 6 — Accidental Release Measures

---

Restrict unprotected personnel from area and ventilate area. Contain spill with sand or absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

---

### Section 7 — Handling and Storage

---

Flinn Suggested Chemical Storage Pattern: Inorganic Miscellaneous. Store with other buffers.

---

### Section 8 — Exposure Controls, Personal Protection

---

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

### Section 9 — Physical and Chemical Properties

Clear, odorless liquid.  
Buffer (potassium phosphate) and distilled water.

### Section 10 — Stability and Reactivity

Avoid heat.  
Shelf life: Good.

### Section 11 — Toxicological Information

Acute effects: N.A.	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

### Section 12 — Ecological Information

Data not yet available.

### Section 13 — Disposal Considerations

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #26b is one option.

### Section 14 — Transport Information

Shipping Name: Not regulated  
Hazard Class: N/A  
UN Number: N/A

N/A = Not applicable

### Section 15 — Regulatory Information

Not listed.

### Section 16 — Other Information

Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

**FLINN SCIENTIFIC INC.**

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flinn@flinnsci.com www.flinnsci.com  
P.O. Box 219 Batavia IL 60510  
(800) 452-1261 Fax (866) 452-1436

3E #: 1223736

3E #: 1223643, 1000370, 1000442  
1214382

**MATERIAL SAFETY DATA SHEET**

3E #: 1223692, 1223693, 1223696,  
1223697, 1223699, 1223700

3E #: 1233691

**DEL LABORATORIES, INC.**  
565 BROAD HOLLOW ROAD  
FARMINGDALE, N.Y. 11735

3E #: 1223701, 1223702, 1223703,  
1223704, 1223705, 1223706

3E #: 1233757

3E #: 1223709, 1223710, 1223711,  
1223712, 1223713, 1223714

1233732  
TELEPHONE EMERGENCY (516) 844-2020

**PRODUCT: S.H. Hard as Nails - ALL CLEARS/TINTS**

**SECTION I  
HAZARDOUS INGREDIENTS**

COMPONENT	%	CAS NO.	PEL/TLV - SOURCE
Ethyl Acetate	20-25	141-78-7	400/400 ppm
N-Butyl Acetate	25-35	123-86-4	150/150 ppm
Isopropyl Alcohol	3-10	67-63-0	400/400 ppm
Dibutyl Phthalate	3-10	84-74-2	5 mg/M,
Camphor	2-2	76-22-2	2/3 ppm
Nitrocellulose	10-20	9004-70-0	Not Established

**SECTION II  
PHYSICAL DATA**

**BOILING/HEATING POINT @760 mm Hg: 171°F-228°F**    **pH:**  
**VAPOR PRESSURE mm Hg @ 20C: 35 - 42**  
**SPECIFIC GRAVITY OR BULK DENSITY: 0.948 - 0.984**  
**SOLUBILITY IN WATER: Approximately 8% to 25% by Weight**  
**APPEARANCE: Pigmented, viscous solution**    **ODOR: Esters**    **INTENSITY:**

**SECTION III  
FIRE AND EXPLOSION HAZARD DATA**

**FLASH POINT (TEST METHOD): 77°F TCC-55°F**    **AUTO IGNITION TEMP:**  
**FLAMMABILITY LIMITS IN AIR (% BY VOL) LOWER: 1.45 UPPER: 8.2**  
**EXTINGUISHING MEDIUM**    Water is recommended to be used in large volume.  
 Dry chemical, CO<sub>2</sub>, or a universal type foam could be used to extinguish small fires.  
**SPECIAL FIRE FIGHTING PROCEDURES**    Self-contained breathing apparatus should be used, to eliminate or minimize breathing vapor, fumes or gases released from the decomposed product. Water spray may be used to flush spills away from exposures. Avoid spreading burning material with water  
**UNUSUAL FIRE AND EXPLOSION HAZARDS**    This material creates a special hazard because it floats on water. This material is flammable and may be ignited by heat, sparks, flame or static electricity.

**PRODUCT:** S.H. Hard as Nails - ALL CLEARS/TINTS (Includes 2700, 2800, 4300, 4400 & 4500 Series)

**SECTION IV  
HEALTH DATA**

**TOXICOLOGICAL TEST DATA:**

**RESULT:**

**EFFECTS OF OVEREXPOSURE:**

**Eyes:** Direct contact with this material or exposure to its vapor or mists (greater than approx. 1000 ppm) may cause burning, tearing and redness, and swelling.

**Skin:** Prolonged or repeated exposure to this material may cause redness and burning, drying and cracking of the skin and dermatitis. Persons with pre-existing skin disorders may be more susceptible to the effects of this material.

**Inhalation:** May cause irritation of the nose and throat. Respiratory symptoms associated with pre-existing lung disorders may be aggravated by exposure to the vapors of this material.

**Ingestion:** Ingredients of excessive quantities may cause irritation of the digestive tract.

**FIRST AID PROCEDURES:**

**Eye Contact:** Move victim away from exposure to vapors and into fresh air. If irritation or redness develops, seek medical attention. For direct contact flush the effected eye(s) with clean water for at least 15 minutes. Seek medical attention.

**Skin Contact:** Remove all contaminated clothing. Cleanse affected area by washing with soap and water. If irritation or redness develops and persists, seek medical attention.

**Inhalation:** Move victim away from source of exposure and into fresh air. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate attention.

**Ingestion:** If victim is alert and conscious, vomiting should be induced for ingestion of large amounts (more than 5 oz.) preferably with syrup of IPECAC. If syrup is not available, vomiting can be induced by giving 3 tablespoons of dishwashing soap in a glass of water.

**SECTION V  
REACTIVITY DATA**

**STABILITY:** Yes.

**CONDITIONS TO AVOID:** This product is incompatible with strong acids or bases and oxidizers.

**CHEMICAL INCOMPATIBILITY:** Yes

**HAZARDOUS DECOMPOSITION PRODUCTS:** May yield carbon monoxide, carbon dioxide and nitrogen oxides.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Flame, electric spark, static and heat.

**CORROSIVE TO METAL:**

**OXIDIZER:**



**PRODUCT:** S.H. Hard as Nails - ALL CLEARS/TINTS (Includes 2700, 2800, 4300, 4400 & 4500 Series)

**SECTION VI  
SPECIAL PROTECTION**

**RESPIRATORY PROTECTION:**

Depending on the airborne concentration, use a respirator or gas mask with appropriate cartridges and canisters (NIOSH approved organic vapor) or supplied air equipment.

**EYE PROTECTION:**

Use splash goggles (NIOSH Approved) to safeguard against potential eye contact, irritation or injury.

**PROTECTIVE CLOTHING:**

The use of gloves impermeable to the specific material handled is advised to prevent skin contact and possible irritation.

**VENTILATION:**

If the current ventilation is not adequate to maintain airborne concentrations, additional vent or exhaust systems may be required. Use explosion-proof equipment.

**OTHER:**

Keep storage containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.

**SECTION VII  
ENVIRONMENTAL DATA**

**ENVIRONMENTAL TOXICITY DATA:**

**SPILL AND LEAK PROCEDURES:**

Highway or railway spills call Chemtrec (800) 424-9300 in U.S. Collect/(202) 483-7616 from Alaska or Hawaii.

**HAZARDOUS SUBSTANCE SUPERFUND:** \_\_\_\_\_ **RO (lbs):** \_\_\_\_\_

**WASTE DISPOSAL METHOD:**

Dispose of in accordance with applicable Federal, State and Local Regulations.

**HAZARDOUS WASTE 40CFR261:** \_\_\_\_\_ **HAZARDOUS WASTE NUMBER:** \_\_\_\_\_

**CONTAINER DISPOSAL:**

Dispose of in accordance with applicable Federal, State and Local Regulations.



## MATERIAL SAFETY DATA SHEET

Corn Syrup

Revised: 10/06/09  
Replaces: 09/07/07  
Printed: 10/08/09

---

### **1. PRODUCT DESCRIPTION**

Product Name: Corn Syrup  
CAS Number: 8029-43-4  
Distributor: Carolina Biological Supply Company  
2700 York Road  
Burlington, NC 27215

Chemical Information: 800-227-1150 (8am-5pm (ET) M-F)  
Chemtrec (Transportation Spill Response 24 hours): 800-424-9300

### **2. COMPOSITION/INFORMATION ON INGREDIENTS**

Corn Syrup (CAS Number 8029-43-4) is not a hazardous material as defined by 29 CFR.

### **3. HAZARD IDENTIFICATION**

Emergency Overview: Irritation is not likely.  
Potential Health Effects:  
Eyes: May cause irritation.  
Skin: May cause irritation.  
Ingestion: May cause gastrointestinal discomfort.  
Inhalation: May cause irritation to respiratory tract.

### **4. FIRST AID MEASURES**

Eyes - Flush thoroughly with water. Seek medical attention if irritation persists.  
Skin - Wash exposed area with soap and water. Seek medical attention if irritation persists.  
Ingestion - In quantities normally handled, symptoms would not be expected. If swallowed, if conscious, give water. Seek medical attention if gastrointestinal irritation or other unexpected symptoms develop.  
Inhalation - Not expected to present a problem. However, if the exposed person is having trouble breathing, remove to fresh air. Give oxygen if breathing is difficult; give artificial respiration if breathing has stopped. Keep person warm and quiet, and get medical attention.

### **5. FIREFIGHTING PROCEDURES**

Flash Point: N/A  
Ignition Point: N/A  
Extinguishing media: Use media suitable to extinguish surrounding fire.

### **6. SPILL OR LEAK PROCEDURES**

Use pump, scoop, and/or absorbent material to collect spilled corn syrup. Place in container for disposal. Small amounts of material may generally be flushed with water to a sanitary sewer system. Dispose in accordance with federal, state, and local regulations.

### **7. SPECIAL PRECAUTIONS**

Keep away from strong oxidizers.

### **8. SPECIAL PROTECTION INFORMATION**

Ventilation: Not normally required.  
Impermeable gloves and splash resistant chemical goggles may be worn to eliminate eye and skin contact. Other protective equipment is typically not required.

### **9. PHYSICAL DATA**

**MATERIAL SAFETY DATA SHEET**

Corn Syrup

Revised: 10/06/09  
Replaces: 09/07/07  
Printed: 10/08/09

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Molecular Weight:	N/A
Melting Point:	N/A
Boiling Point:	110 °C (226 °F)
Vapor Pressure:	N/A
Vapor Density:	N/A
Specific Gravity:	N/A
Percent Volatile by Volume:	N/A
Evaporation Rate:	N/A
Solubility in Water:	Fully soluble.
Appearance and Odor:	Clear, odorless liquid with sweet taste.

**10. REACTIVITY DATA**

Stability: Stable.  
 Incompatibility: Strong oxidizing agents.  
 Hazardous Decomposition Products: N/A  
 Hazardous Polymerization: Will not occur.

**11. TOXICITY DATA**

N/A

**12. ECOLOGICAL DATA**

N/A

**13. DISPOSAL INFORMATION**

Corn syrup is biodegradable. Dispose in accordance with Federal, State, and local regulations.

**14. TRANSPORT INFORMATION**

Not regulated

**15. REGULATORY INFORMATION**

N/A

**16. ADDITIONAL INFORMATION**

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. Any employer must carefully assess the applicability of any information contained herein in regards to the particular use to which the employer puts the material.

**Glossary**

ACGIH.....American Conference of Governmental Industrial Hygienists

CAS Number..Chemical Abstracts Service Number

CERCLA.....Comprehensive Environmental Response, Compensation, and Liability Act

DOT.....U.S. Department of Transportation

IARC.....International Agency of Research on Cancer

mppcf.....million particles per cubic foot

N/A.....Not Available

NTP.....National Toxicology Program

OSHA.....Occupational Safety and Health Administration

PEL.....Permissible Exposure Limit

ppm.....parts per million

RCRA.....Resource Conservation and Recovery Act

**MATERIAL SAFETY DATA SHEET**

Corn Syrup

Revised: 10/06/09  
Replaces: 09/07/07  
Printed: 10/08/09

---

SARA.....Superfund Amendments and Reauthorization Act  
TLV.....Threshold Limit Value  
TSCA.....Toxic Substances Control Act



**PRODUCT INFORMATION**

Product Identity	<b>Globe® Corn Syrup, 016520</b>	
Product Use	Food-grade corn syrup / glucose	
Company	Corn Products U.S. 5 Westbrook Corporate Center Westchester, IL 60154 USA Info/Emergency Phone: (708) 551-2600 Business Hours: Mon - Fri, 7:30 a.m. - 5:00 p.m. (Central Time), Fax: (708) 551-2510	Casco, Inc. 401 The West Mall, 2 <sup>nd</sup> Floor Etobicoke, Ontario M9C 5P7 Canada Info/Emergency Phone: (416) 620-2300 Fax: (416) 620-4488

**COMPOSITION/INFORMATION ON INGREDIENTS**

Substance	CAS Number	% or Range	Toxicology Data
Corn Syrup / Glucose	8029-43-4	≤100	None available

**HAZARDS IDENTIFICATION**

Toxicity	Skin contact is not known to be hazardous to health. Eye contact may cause minor irritation. Ingestion of quantities sufficient to produce adverse health effects is not a plausible route of exposure in industrial use.
Reactivity	The product is non-reactive under foreseeable conditions of use.
Flammability	The product is not flammable.
Corrosivity	The product is not corrosive.

**FIRST AID MEASURES**

Inhalation	Remove the subject from the source of exposure.
Skin Contact	Wash affected area with water.
Eye Contact	Flush eyes with water for at least fifteen minutes. Seek medical assistance if necessary.
Ingestion	If large quantities of product are ingested, seek medical attention.

**FIRE AND EXPLOSION HAZARDS AND FIREFIGHTING MEASURES**

Hazards	Product as a liquid does not pose explosivity hazards.	
Extinguishing media	Water, carbon dioxide, or dry chemical.	
Fire and Explosion Hazards Data	Flashpoint: no data available Lower Explosive Limit: no data available	Autoignition temperature: no data available Upper Explosive Limit: no data available

**PREVENTIVE MEASURES****◆ Accidental Release Measures**

Control Measures	Avoid direct release to environmental media. Contain product for disposal. See Environmental Precautions.
Personal Protection	Avoid contact with skin, eyes, and mucous membranes. Protective equipment is not required for cleanup unless product temperature is sufficient to require precautions.
Environmental Precautions	Dispose of residues in compliance with applicable national, state/provincial, and local regulations.

**◆ Handling and Storage**

Handling	Avoid contact with eyes and skin. Use personal protection appropriate for the product temperature.
Storage	Store product away from incompatible materials (see <i>Stability and Reactivity</i> for incompatible materials).

**◆ Exposure Controls and Personal Protection**

Engineering Controls	None required other than preventing direct contact with product.
Respiratory Protection	Not required under foreseeable conditions of use.
Eye Protection	Wear appropriate eye protection such as goggles or glasses if there is the potential for eye contact with the product.
Skin Protection	Skin protection is needed depending on product temperature.

**PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	Form: liquid	Color/colour: colorless – straw	Odor/odour: None or faint cereal-like
Physical Data	Melting Point: not applicable	Density: 1.429 – 1.443 g/cc (in air @ 20°C)	Water Solubility: soluble
	pH Value: no data available	Odor/odour threshold: no data available	Vapor/vapour Pressure: ≈30-35 mm Hg @ 100°F (38°C)
	Boiling Point: ≈231-235°F	Freezing Point : no data available	Evaporation Point: no data available
	Vapor Density: no data available		

**STABILITY AND REACTIVITY**

Conditions to avoid	This product is stable under normal conditions of temperature and pressure.
Materials to avoid	Oxidizing/oxidising agents.
Decomposition products	Carbon monoxide; carbon dioxide; irritant gasses, and smoke.
Dangerous polymerization/polymerisation	Will not occur.
Dangerous reactions	None are known or reasonably foreseeable.



**TOXICOLOGICAL INFORMATION**

Health Hazards of Product	<b>Routes of Entry:</b> Ingestion. Not absorbed through skin or mucous membranes.	
	<b>Acute Effects:</b> Inhalation, eye contact, or skin contact are not known to be hazardous.	
	<b>Chronic Effects:</b> Adverse effects from chronic ingestion are not known.	
Exposure Limits	No data available	
Carcinogenicity	IARC: No ACGIH: No	NTP (USA): No OSHA (USA): No
Reproductive Toxicity	Corn syrup / glucose is not classified as a reproductive toxin by any authoritative body or regulatory agency.	

**TRANSPORT INFORMATION**

Shipment of this product is not controlled by ICAO, USDOT, or Canadian TDG regulations.

**REGULATORY INFORMATION**

United States	TSCA: All constituents are on EPA's TSCA inventory. CERCLA: Contains no reportable quantity (RQ) substances per Sections 302/304. SARA: Contains no chemicals subject to the reporting requirements of Sections 311/312/313. FDA: Classified as <i>Generally Regarded as Safe</i> (GRAS).	
Canada	WHMIS Classification(s): not applicable DSL: Glucose is included. Food and Drug Act: Glucose is regulated as a standard foodstuff.	

**PREPARATION INFORMATION**

Preparer/Responsible Party	Paul Zwijack Corn Products U.S. 5 Westbrook Corporate Center Westchester, IL 60154 USA Corn Products International, Inc.	Doug Hobbs Casco, Inc. 401 The West Mall, 2 <sup>nd</sup> Floor Etobicoke, Ontario M9C 5P7 Canada
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Revision Information      Date of revision: 09/09/03  
 Supersedes previous MSDS dated: 01/21/03

**DISCLAIMER OF EXPRESSED OR IMPLIED WARRANTIES**

The attached data has been compiled from sources which Corn Products International, Inc. and Casco, Inc., in good faith, believe to be dependable and is accurate and reliable to the best of our knowledge and belief. However, Corn Products and Casco cannot make any warranty or representation respecting the accuracy or completeness of the data and assume no responsibility for any liability or damages relating thereto or for advising you regarding the protection of your employees, customers, or others. (Users should make their own tests to determine the applicability of such information or the suitability of any products for specific use.)

The attached data is being provided to you via Corn Products US website. This data may be revised without notice and is intended for product samples issued by Corn Products US. Please contact your Corn Products Customer Service representative for verification of current data or other additional information.



**Material Safety Data Sheet****Product Name:** CRAYOLA(R) COLORED PENCILS**Product Family:****1. Chemical Product and Company Identification**

BINNEY & SMITH  
1100 CHURCH LANE  
EASTON, PA 18044  
1-800-272-9652

EMERGENCY TELEPHONE NUMBER:  
1-800-445-7067

SUBSTANCE: CRAYOLA(R) COLORED PENCILS

TRADE NAMES/SYNONYMS:

CRAYOLA COLORED PENCILS; PRODUCT COLORS/CODES:; 68-0258; 68-2186; 68-3360; 68-4408; 68-4010; 68-4012; 68-4012E; 68-4024; 68-4024E; 68-4036; 68-4060; 68-4110; 68-4112; 68-4208; 68-4316; 68-8024; 68-4108 WRITE START; ATOMIC TANGERINE; BLACK; BLIZZARD BLUE; BLUE; BROWN; LIGHT ORANGE; MAGENTA; MAHOGANY; MAROON; ORCHID; PEACH; SHOCKING PINK; ORANGE; SCREAMIN' GREEN; RED; RED ORANGE; RASPBERRY; PINK; DARK BROWN; TAN; LIME GREEN; AQUA GREEN; LAZER LEMON; VIOLET (PURPLE); SKY BLUE; GREEN; COOL GRAY; YELLOW ORANGE; NAVY BLUE; LIGHT BROWN; BRONZE YELLOW; GREEN BLUE; WILD WATERMELON; WHITE; YELLOW; YELLOW GREEN; PINE GREEN; GOLDEN YELLOW; LEMON YELLOW; GRAY; OLIVE GREEN; LIGHT BLUE; BNSSS084

PRODUCT USE: Arts and Crafts

CREATION DATE: Nov 11 1997  
REVISION DATE: Sep 16 1999

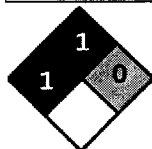
**2. Composition, Information on Ingredients**

COMPONENT: Product has been certified as non-toxic by The Art and Creative Materials Institute, Inc. and conforms to ASTM D-4236 Standard Practice for Labeling Art Materials for Acute and Chronic Adverse Health Hazards.

CAS NUMBER: Not assigned.

EC NUMBER: Not assigned.

PERCENTAGE: 100

**3. Hazards Identification**

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=1 REACTIVITY=0

EC CLASSIFICATION (CALCULATED): Not determined.

EMERGENCY OVERVIEW:

PHYSICAL FORM: solid

ODOR: pleasant odor

MAJOR HEALTH HAZARDS: No significant target effects reported.

POTENTIAL HEALTH EFFECTS:

INHALATION:

none  
SKIN CONTACT:  
none  
EYE CONTACT:  
none  
INGESTION:  
none

CARCINOGEN STATUS:  
OSHA: N  
NTP: N  
IARC: N

#### 4. First Aid Measures

INHALATION: It is unlikely that emergency treatment will be required. Remove from exposure. Get medical attention, if needed.

SKIN CONTACT: It is unlikely that emergency treatment will be required. If adverse effects occur, wash with soap or mild detergent and large amounts of water. Get medical attention, if needed.

EYE CONTACT: It is unlikely that emergency treatment will be required. Wash with large amounts of water or normal saline until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

INGESTION: Contact local poison control center or physician immediately.

#### 5. Fire Fighting Measures

FIRE AND EXPLOSION HAZARDS: Slight fire hazard.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam

FIRE FIGHTING: Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products.

#### 6. Accidental Release Measures

OCCUPATIONAL RELEASE:  
Collect spilled material in appropriate container for disposal.

#### 7. Handling and Storage

Store and handle in accordance with all current regulations and standards. See original container for storage recommendations. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances.

Use methods to minimize dust.

#### 8. Exposure Controls, Personal Protection

**EXPOSURE LIMITS:****CRAYOLA(R) COLORED PENCILS:**

No occupational exposure limits established.

**VENTILATION:** Based on available information, additional ventilation is not required.

**EYE PROTECTION:** Eye protection not required under normal conditions.

**CLOTHING:** Protective clothing is not required under normal conditions.

**GLOVES:** Protective gloves are not required under normal conditions.

**RESPIRATOR:** No respirator is required under normal conditions of use.

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

---

**9. Physical and Chemical Properties**

**PHYSICAL STATE:** solid

**ODOR:** pleasant odor

**BOILING POINT:** Not applicable

**MELTING POINT:** Not available

**VAPOR PRESSURE:** Not applicable

**VAPOR DENSITY:** Not applicable

**SPECIFIC GRAVITY:** Not available

**WATER SOLUBILITY:** Not available

**PH:** Not applicable

**VOLATILITY:** Not applicable

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not applicable

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

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**10. Stability and Reactivity**

**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** None reported.

**INCOMPATIBILITIES:** oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of carbon

**POLYMERIZATION:** Will not polymerize.

---

**11. Toxicological Information**

Not available

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**12. Ecological Information**

Not available

**13. Disposal Considerations**

Dispose in accordance with all applicable regulations.

**14. Transport Information**

No classification assigned.

LAND TRANSPORT ADR/RID: No classification assigned.

AIR TRANSPORT IATA/ICAO: No classification assigned.

MARITIME TRANSPORT IMDG: No classification assigned.

**15. Regulatory Information**

U.S. REGULATIONS:

TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): N

SARA SECTION 302 (40CFR355.30): N

SARA SECTION 304 (40CFR355.40): N

SARA SECTION 313 (40CFR372.65): N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: N

CHRONIC: N

FIRE: N

REACTIVE: N

SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER: Not assigned.

**16. Other Information**

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**Material Safety Data Sheet**

**Product Name:** CRAYOLA(R) MARKERS BROAD AND FINE LINE (CLASSIC, TROPICAL, BOLD, FLUORESCENT COLORS, PASTELS, ASSORTED, WILDLIFE, BRITE)

**Product Family:**

**1. Chemical Product and Company Identification**

BINNEY & SMITH  
1100 CHURCH LANE  
EASTON, PA 18044  
1-800-272-9652

EMERGENCY TELEPHONE NUMBER:  
1-800-445-7067

SUBSTANCE: CRAYOLA(R) MARKERS BROAD AND FINE LINE (CLASSIC, TROPICAL, BOLD, FLUORESCENT COLORS, PASTELS, ASSORTED, WILDLIFE, BRITE)

TRADE NAMES/SYNONYMS:

CRAYOLA MARKERS; PRODUCT COLORS/CODES: 58-7700; 58-7708; 58-7709; 58-7710; 58-7712; 58-7716; 58-7717; 58-7718; 58-7719; 58-7722; 58-7723; 58-7726; 58-7732; 58-7736; 58-7749; 58-7748; 58-7832; 58-7836; 58-8190; CRAYOLA MARKERS BROAD AND FINE LINE (CLASSIC, TROPICAL, BOLD, FLUORESCENT COLORS, PASTELS, ASSORTED, WILDLIFE, BRITE); BNSSS169

PRODUCT USE: Arts and Crafts

CREATION DATE: Nov 13 1997

REVISION DATE: Jun 01 2000

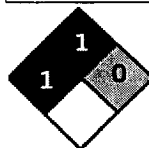
**2. Composition, Information on Ingredients**

COMPONENT: Product has been certified as non-toxic by The Art and Creative Materials Institute, Inc. and conforms to ASTM D-4236 Standard Practice for Labeling Art Materials for Acute and Chronic Adverse Health Hazards.

CAS NUMBER: Not assigned.

EC NUMBER: Not assigned.

PERCENTAGE: 100.0

**3. Hazards Identification**

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=1 REACTIVITY=0

EC CLASSIFICATION (CALCULATED): Not determined.

EMERGENCY OVERVIEW:

COLOR: various colors

PHYSICAL FORM: article containing liquid

ODOR: odorless

MAJOR HEALTH HAZARDS: No significant target effects reported.

POTENTIAL HEALTH EFFECTS:

INHALATION:

none

SKIN CONTACT:

none  
EYE CONTACT:

none  
INGESTION:  
none

CARCINOGEN STATUS:

OSHA: N  
NTP: N  
IARC: N

#### 4. First Aid Measures

**INHALATION:** It is unlikely that emergency treatment will be required. Remove from exposure. Get medical attention, if needed.

**SKIN CONTACT:** It is unlikely that emergency treatment will be required. If adverse effects occur, wash with soap or mild detergent and large amounts of water. Get medical attention, if needed.

**EYE CONTACT:** It is unlikely that emergency treatment will be required. Wash with large amounts of water or normal saline until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

**INGESTION:** Contact local poison control center or physician immediately.

#### 5. Fire Fighting Measures

**FIRE AND EXPLOSION HAZARDS:** Slight fire hazard.

**EXTINGUISHING MEDIA:** regular dry chemical, carbon dioxide, water, regular foam

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products.

**FLASH POINT:** unknown

#### 6. Accidental Release Measures

**OCCUPATIONAL RELEASE:**  
Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

#### 7. Handling and Storage

Store and handle in accordance with all current regulations and standards. See original container for storage recommendations. Keep separated from incompatible substances.

#### 8. Exposure Controls, Personal Protection

EXPOSURE LIMITS:



CRAYOLA(R) MARKERS BROAD AND FINE LINE (CLASSIC, TROPICAL, BOLD, FLUORESCENT COLORS, PASTELS, ASSORTED, WILDLIFE, BRITE):

No occupational exposure limits established.

VENTILATION: Based on available information, additional ventilation is not required.

EYE PROTECTION: Eye protection not required under normal conditions.

CLOTHING: Protective clothing is not required under normal conditions.

GLOVES: Protective gloves are not required under normal conditions.

RESPIRATOR: No respirator is required under normal conditions of use.

---

## 9. Physical and Chemical Properties

PHYSICAL STATE: Not available

COLOR: various colors

PHYSICAL FORM: article containing liquid

ODOR: odorless

BOILING POINT: Not available

MELTING POINT: Not available

VAPOR PRESSURE: Not available

VAPOR DENSITY: Not available

SPECIFIC GRAVITY: Not available

WATER SOLUBILITY: Not available

PH: Not available

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not available

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

---

## 10. Stability and Reactivity

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: None reported.

INCOMPATIBILITIES: oxidizing materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

POLYMERIZATION: Will not polymerize.

---

## 11. Toxicological Information

Not available

---

## 12. Ecological Information

Not available

**13. Disposal Considerations**

Dispose in accordance with all applicable regulations.

**14. Transport Information**

No classification assigned.

LAND TRANSPORT ADR/RID: No classification assigned.

AIR TRANSPORT IATA/ICAO: No classification assigned.

MARITIME TRANSPORT IMDG: No classification assigned.

**15. Regulatory Information**

U.S. REGULATIONS:

TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): N

SARA SECTION 302 (40CFR355.30): N

SARA SECTION 304 (40CFR355.40): N

SARA SECTION 313 (40CFR372.65): N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: N

CHRONIC: N

FIRE: N

REACTIVE: N

SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER: Not assigned.

**16. Other Information**

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# Material Safety Data Sheet

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## 1. Chemical Product and Company Identification

DESCRIPTION: ELMER'S WASHABLE SCHOOL GLUE  
PRODUCT TYPE: PVAC BASED ADHESIVE.  
APPLICATION: FOR PRODUCT CODES SEE SECTION 16

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### • Manufacturer/Supplier Information

MSDS Prepared by:  
Elmer's Products, Inc. Emergency Phone Number  
1000 Kingsmill Parkway Poison Control Center  
Columbus, OH 43229 1-800-228-5635 ext 22

For additional health, safety or regulatory information, call 614-985-6440

ext 14. Call 1-800-848-9400 to place an order or request additional MSDSs.

---

## 2. Composition, Information on Ingredients

No hazardous ingredients known to company.

---

## 3. Hazards Identification

---

## 3.1 Emergency Overview

Appearance	Milky white liquid
Odor	Mild acetic aroma
Not an immediate health hazard.	

---

### • HMIS Rating

HEALTH = 0 (minimal)  
FLAMMABILITY = 0 (minimal)  
REACTIVITY = 0 (minimal)

---

## 3.2 Potential Health Effects

---

### • Immediate Hazards

INGESTION: No hazards known to company.  
INHALATION: No hazards known to company.  
SKIN: No hazards known to company.  
EYES: No hazards known to company.

---

### • Delayed Hazards

None of the components present in this product at concentrations equal to or greater than 0.1% have been listed by NTP, classified by IARC, nor regulated by OSHA as a carcinogen.

---

## 4. First Aid Measures

INGESTION: If accidentally swallowed, dilute by drinking large quantities of water. Immediately contact poison control

center or hospital emergency room for any other additional treatment directions.

EYES: Immediately flush eyes with plenty of water. Call a physician if irritation persists.

---

## 5. Fire Fighting Measures

Autoignition Temperature	Not available
Upper/Lower Flammable Limits	Not applicable
Up/Lower Explosive Limits, % by Vol	Not applicable
Flash Point	Not applicable

Will not burn unless water has evaporated. Dried material may burn.

In case of fire, water should be used to keep fire-exposed containers cool.

---

## 6. Accidental Release Measures

Soak up with absorbent material and remove to a chemical disposal area. Prevent entry into natural bodies of water.

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## 7. Handling and Storage

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### 7.1 Handling

Handle in accordance with good industrial hygiene and safety practices.

---

### 7.2 Storage

Keep from freezing.  
Store in a cool, dry place.  
Keep containers tightly closed.

---

## 8. Exposure Controls/Personal Protection

---

### 8.1 Exposure Controls

No special control measures necessary under normal conditions of use.

---

### 8.2 Personal Protection

No special protection necessary.

---

### 8.3 Exposure Guidelines

None established

---

## 9. Physical and Chemical Properties

Percent Volatiles	70
pH @ 25 C	4.7
Specific Gravity	1.05
Appearance	Milky white liquid
Autoignition Temperature	Not available
Boiling Point	100 deg C
Vapor Density (Air=1)	< 1
Vapor Pressure, mm Hg @ 20 C	17
Evaporation Rate (Butyl Acetate=1)	< 1
Upper/Lower Flammable Limits	Not applicable
Up/Lower Explosive Limits, % by Vol	Not applicable
Flash Point	Not applicable
Freezing Point	0 deg C
Odor	Mild acetic aroma
Odor Threshold, ppm	Not available
Solubility in Water	Dispersible

Coefficient of Water/Oil Distrib. Not available

---

## 10. Stability and Reactivity

Normally stable as defined in NFPA 704-12(4-3.1).

---

- **Conditions to Avoid:**

Exposure to heat, flame and incompatibles.

---

- **Incompatibilities:**

Strong acids and alkaline materials.

---

- **Decomposition products may include:**

CO, CO<sub>2</sub>.

---

- **Hazardous polymerization:**

Will not occur.

---

- **Other Hazards:**

None known to company.

---

## 11. Toxicological Information

INGESTION: Not toxic orally when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

INHALATION: Not toxic by inhalation when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

SKIN ABSORPTION: Not toxic dermally when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

SKIN: Not an irritant when tested as described in 16 CFR Part 1500.41.

EYES: Not an irritant when tested as described in 16 CFR Part 1500.42.

---

## 12. Ecological Information

Not determined.

---

## 13. Disposal Considerations

Recover free liquid. Absorb residue and dispose of according to local, state/provincial, and federal requirements.

---

## 14. Transport Information

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### 14.1 U.S. Department of Transportation (DOT)

The data provided in this section is for information only and may not be specific to your package size. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

Non-Regulated.

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### 14.2 Canadian Transportation of Dangerous Goods (TDG)

Non-Regulated.



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## 15. Regulatory Information (Selected Regulations)

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### 15.1 U.S. Federal Regulations

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- **OSHA Hazard Communication Standard 29CFR1910.1200**

This material is not a "health hazard" or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

---

- **SARA Title III: Section 311/312**

Does not meet any hazard category

---

- **SARA Title III Section 313 and 40 CFR Part 372**

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.  
None required per SARA TITLE III SECTION 313.

---

- **TSCA Section 8(b) Inventory**

All reportable chemical substances are listed on the TSCA Inventory. We rely on certifications of compliance from our suppliers for chemical substances not manufactured by us.

---

## 15.2 Canadian Regulations

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- **Workplace Hazardous Materials Information System (WHMIS)**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contains all the information required by the CPR.

Not a controlled product

---

- **Canadian Environmental Protection Act (CEPA)**

All reportable chemical substances are listed on the Domestic Substances List (DSL) or otherwise comply with CEPA new substance notification requirements.

---

- **National Pollutant Release Inventory (NPRI)**

This product contains the following chemical(s) subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA) subsection 16(1), National Pollutant Release Inventory. None required.

---

## 16. Other Information

AP (Non-Toxic): Products bearing the AP (Non-Toxic) Product Seal of The Art & Creative Materials Institute, Inc. (ACMI) are certified in a program of toxicological evaluation by a medical expert to contain no materials in sufficient quantities to be toxic or injurious to humans or to cause acute or chronic health problems. This program is reviewed by ACMI's Toxicological Advisory Board. These products are certified by ACMI to be labeled in accordance with the chronic hazard labeling standard, ASTM D-4236 and Federal Law, P.L. 100-695. In addition, there is no physical hazard as defined within 29 CFR Part 1910.1200(c).

MSDS covers items:

U.S.: E301, E304, E308, E330, E340

Canada: 60300, 60307, 60310, 60331, 60341

---

## • User's Responsibility

The OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace

Hazardous Materials Information System (WHMIS) require that the information

contained on these sheets be made available to your workers. Educate and

train your workers regarding OSHA and WHMIS precautions. Instruct your workers to handle this product properly. Consult with appropriate experts

to guard against hazards associated with use of this product and its ingredients.

---

## • Disclaimer

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE

MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE, except that the product

shall conform to contracted specifications, and that the product does not

infringe any valid United States or Canadian patent. No claim of any kind

shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall

Seller be liable for incidental or consequential damages, whether Buyer's claim is

based on contract, breach of warranty, negligence or otherwise.

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CUR ISSUE 18-JAN-02  
PREVIOUS ISSUE: 29-MAY-01



MATERIAL SAFETY DATA SHEET

Page 1 of  
Revised 2/06/9  
Replaces 1/02/9  
Printed 8/14/9

**ETHIDIUM BROMIDE, DNA STAIN**  
**CAROLINA BIOLOGICAL SUPPLY COMPANY**

1. PRODUCT DESCRIPTION

Product Name: Ethidium Bromide, DNA Stain  
Product Code(s): 86-1470  
Size: 1 g  
Chemical Name: 3,8-Diamino-5-Ethyl-6-Phenyl-Bromide  
CAS Number: 1239-45-8  
Formula: C<sub>21</sub>H<sub>20</sub>BrN<sub>3</sub>  
Synonyms: Phenanthridinium  
Distributor: Carolina Biological Supply Company  
2700 York Road  
Burlington, NC 27215

Chemical Information: 800-227-1150 (8am-5pm (ET) M-F)  
Chemtrec (Transportation Spill Response 24 hours): 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Principle Hazardous Components: Ethidium Bromide (CAS# 1239-45-8) 98%  
TLV and PEL units: Not established

3. HAZARD IDENTIFICATION

Emergency Overview: Harmful if inhaled, swallowed or absorbed through skin.  
Potential Health Effects:  
Eyes: May cause irritation.  
Skin: May cause irritation.  
Ingestion: May cause gastrointestinal discomfort.  
Inhalation: May cause irritation to respiratory tract.

4. FIRST AID MEASURES

Emergency and First Aid Procedures:  
Eyes - Flush with water for at least 15 minutes, raising and lowering eyelids occasionally. Get medical attention if irritation persists.  
Skin - Thoroughly wash exposed area for at least 15 minutes. Remove contaminated clothing. Launder contaminated clothing before reuse. Get medical attention if irritation persists.  
Ingestion - If swallowed, if conscious, give plenty of water. Immediately call a physician or poison control center. Never give anything by mouth to an unconscious person.  
Inhalation - Remove to fresh air. Give oxygen if breathing is difficult; give artificial respiration if breathing has stopped. Keep person warm, quiet, and get medical attention.

5. FIREFIGHTING PROCEDURES

Flash Point (Method Used): No data available  
NFPA Rating: Health: 2  
Fire: 1  
Reactivity: 0

Extinguisher Media:  
Use dry chemical, CO2 or appropriate foam.

Post-It® Fax Note	7671	Date	8/14	# of pages	▶
To	Heather Carlson		From		
Co./Dept.			Co.	CBSC	
Phone #	765-494-0452		Phone #		
Fax #	765-494-7403		Fax #		

MATERIAL SAFETY DATA SHEET

ETHIDIUM BROMIDE, DNA STAIN  
CAROLINA BIOLOGICAL SUPPLY COMPANY

Page 2 of 2  
Revised 2/06/98  
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5. FIREFIGHTING PROCEDURES (Cont.)

Flammable Limits in Air % by Volume: No data available

Autoignition Temperature: No data available

Special Firefighting Procedures:

Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Thermal decomposition produces toxic fumes.

6. SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled:

Ventilate area of spill. Clean-up personnel should wear proper protective equipment. Avoid creating dust. Sweep or scoop up and containerize for disposal.

7. SPECIAL PRECAUTIONS

Precautions to be Taken in Handling or Storing: Keep container tightly closed. Do not breathe dust. Store away from oxidizers.

Other Precautions: Do not get in eyes, on skin, or on clothing.

8. SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type):

None needed under normal conditions of use with adequate ventilation. NIOSH approved equipment should be worn if PELs are exceeded.

Ventilation:

Local Exhaust: Yes

Mechanical (General): Yes

Special: No

Other: No

Protective Gloves:

Rubber, neoprene, PVC, or equivalent.

Eye Protection:

Splash proof chemical safety goggles should be worn at all times.

Other Protective Clothing or Equipment:

Lab coat, eye wash, and safety shower.

9. PHYSICAL DATA

Molecular Weight: 394.32

Melting Point: 262C Decomposes

Boiling Point: No data available

Vapor Pressure: No data available

Vapor Density (Air=1): No data available

Specific Gravity (H2O=1): No data available

Percent Volatile by Volume: No data available

Evaporation Rate (H2O=1): No data available

Solubility in Water: Soluble

Appearance and Odor: Dark reddish crystals

MATERIAL SAFETY DATA SHEET

ETHIDIUM BROMIDE, DNA STAIN  
CAROLINA BIOLOGICAL SUPPLY COMPANY

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Replaces 1/02/9  
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10. REACTIVITY DATA

Stability: Stable  
Conditions to Avoid: Heat  
Incompatibility (Materials to Avoid): Oxidizers  
Hazardous Decomposition Products: NO<sub>x</sub>, CO<sub>x</sub>, Bromine, and Bromine compounds.  
Hazardous Polymerization: Will not occur

11. TOXICITY DATA

Toxicity Data: ipr-mus LDLo: 20mg/kg  
Effects of Overexposure:  
Acute: See section 3  
Chronic: Tests on laboratory animals indicate material may produce adverse mutagenic effects.  
Conditions Aggravated by Overexposure: No data available  
Target Organs: No data available  
Routes of Entry: Ingestion, inhalation or skin contact.

12. ECOLOGICAL DATA

EPA Waste Numbers: None

13. DISPOSAL INFORMATION

Waste Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations.  
Always contact a permitted waste disposer (TSD) to assure compliance.

14. TRANSPORT INFORMATION

\*\*\*1 g bottle is a small quantity exception.\*\*\*

15. REGULATORY INFORMATION

EPA TSCA Status: On TSCA Inventory  
Hazard Category for SARA Section 311/312 Reporting: Acute

Product or Components	SARA EHS Sec. 302 TPQ	SARA Sec. 313 Chemicals		CERCLA Sec. 103 RQ lbs.	RCRA Sec. 261.33
		Name	Chemical List Category		
Ethidium Bromide	No	No	No	No	No

16. ADDITIONAL INFORMATION

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. Any employer must carefully assess

MATERIAL SAFETY DATA SHEET

**ETHIDIUM BROMIDE, DNA STAIN**  
**CAROLINA BIOLOGICAL SUPPLY COMPANY**

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 Revised 2/06/98  
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16. ADDITIONAL INFORMATION (Cont.)

the applicability of any information contained herein in regards to the particular use to which the employer puts the material.

## Glossary

ACGIH.....American Conference of Governmental Industrial Hygienists  
 CAS Number..Chemical Services Abstract Number  
 CERCLA.....Comprehensive Environmental Response, Compensation, and  
 Liability Act  
 DOT.....U.S. Department of Transportation  
 IARC.....International Agency of Research on Cancer  
 N/A.....Not Available  
 NTP.....National Toxicology Program  
 OSHA.....Occupational Safety and Health Administration  
 PEL.....Permissible Exposure Limit  
 ppm.....parts per million  
 RCRA.....Resource Conservation and Recovery Act  
 SARA.....Superfund Amendments and Reauthorization Act  
 TLV.....Threshold Limit Value  
 TSCA.....Toxic Substances Control Act



## Material Safety Data Sheet

Printing date 07/29/2006

Reviewed on 06/01/2006

**1 Identification of substance:**

- **Product details:**
- **Trade name:** *Fast Blast DNA Staining Solution*
- **Catalog or product number:** 1660420, 9704664, 9704659, 1660420EDU
- **Application of the substance / the preparation:** Laboratory chemicals
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.  
510-741-1000

**2 Composition/Information on components:**

- **Chemical characterization:**
- **CAS No. Description:**  
7732-18-5 water
- **Identification number(s):**
- **EINECS Number:** 231-791-2

**3 Hazards identification**

- **Information pertaining to particular dangers for man and environment:** not applicable
- **Classification system**  
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **OSHA hazard ratings**
- **Health 0:** Minimal Hazard.
- **Fire 0:** Minimal hazard.
- **Reactivity 0:** Minimal hazard.

**4 First aid measures**

- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Induce vomiting and call for medical help.

**5 Fire fighting measures**

- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

(Contd. on page 2)

USA

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 06/01/2006

**Trade name: Fast Blast DNA Staining Solution**

(Contd. of page 1)

· **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information for safe handling:**  
No special measures required.  
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves:** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**9 Physical and chemical properties:**

· **General Information**

<b>Form:</b>	liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Odorless

· **Change in condition**

**Melting point/Melting range:** 0°C

(Contd. on page 3)

## Material Safety Data Sheet

Printing date 07/29/2006

Reviewed on 06/01/2006

Trade name: *Fast Blast DNA Staining Solution*

(Contd. of page 2)

<b>Boiling point/Boiling range:</b> 100°C	
· <b>Flash point:</b>	Not applicable
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Vapor pressure at 20°C:</b>	23 hPa
· <b>Density at 20°C:</b>	1 g/cm <sup>3</sup>
· <b>Solubility in / Miscibility with Water:</b>	Not miscible or difficult to mix
· <b>pH-value at 20°C:</b>	7.7
· <b>Organic solvents:</b>	0.0 %
· <b>Water:</b>	99.4 %
· <b>Solids content:</b>	0.3 %

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions:** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

**11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.  
The substance is not subject to classification according to the latest version of the EU lists.
- **Target organs:** Not applicable.

**12 Ecological information:**

- **General notes:** Generally not hazardous for water.

**13 Disposal considerations**

- **Product:**
- **Recommendation:** Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

USA

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 06/01/2006

Trade name: **Fast Blast DNA Staining Solution**

(Contd. of page 3)

**14 Transport information**

· DOT regulations:

· Hazard class: -

· Land transport ADR/RID (cross-border)

· ADR/RID class: -

· Maritime transport IMDG:

· IMDG Class: -

· Marine pollutant: No

· Air transport ICAO-TI and IATA-DGR:

· ICAO/IATA Class: -

· Transport/Additional information: Not dangerous according to the above specifications.

**15 Regulations**

· SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

· Section 302/304 (40CFR355.30 / 40CFR355.40):

Substance not listed.

· Section 313 (40CFR372.65):

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

Substance is not listed.

· IARC (International Agency for Research on Cancer)

Substance is not listed.

· NTP (National Toxicology Program)

Substance is not listed.

· TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

· MAK (German Maximum Workplace Concentration)

Substance is not listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

· Markings according to EU guidelines:

Observe the general safety regulations when handling chemicals

The substance is not subject to classification according to EU lists and other sources of literature known to us.

The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

· Safety phrases:

60 This material and its container must be disposed of as hazardous waste.

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 07/29/2006

Reviewed on 06/01/2006

**Trade name: Fast Blast DNA Staining Solution**

(Contd. of page 4)

- **National regulations**
- **Water hazard class: Generally not hazardous for water.**

**16 Other information:**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing MSDS: Environmental Health and Safety.**

- **Contact:**

*Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 741-1000*

*Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 724-7000*

- **\* Data compared to the previous version altered.**

USA



# Material Safety Data Sheet

## Section 1: Company and Product Identification



(866) 260-0501

Manufactured by:  
Columbus Chemical Industries, Inc.  
N4335 Ternkin Rd.  
Columbus, WI 53925  
TEL: (920) 623-2140

24 HOUR EMERGENCY ASSISTANCE CHEMTREC 800-424-9300 HAZARD RATING		
4- EXTREME	HEALTH	1
3- SEVERE		
2- MODERATE	FLAMMABILITY	0
1- SLIGHT		
0- MINIMAL	REACTIVITY	0

**Product Name** Gram's Iodine Solution

**Product No.** 9414406

**CAS** Not available.

**Material Uses** Not available.

**Synonyms** Not available.

**Formula**

## Section 2: Hazardous Ingredients

Product Name	CAS	Conc (%)	PIN
1) Potassium iodide	7681-11-0	0-1	N/A
2) Iodine	7553-56-2	0-1	N/A
3) Sodium bicarbonate	144-55-8	0-1	N/A
4) Water (Non-hazardous)	7732-18-5	>97	N/A

For Exposure Limits (TLV, PEL), LD50 and LC50 see section 5 of this document.

\* Chemical subject to the reporting of SARA Title III.

## Section 3: Physical Data

<b>Appearance</b>	Liquid.	<b>Odor Threshold</b>	Not available.
<b>Color</b>	Rust.	<b>Vapor Pressure</b>	Not available.
<b>Odor</b>	Iodine.	<b>Evaporation Rate (Reference solvent)</b>	Not available.
<b>Specific Gravity (Water = 1)</b>	Not available.	<b>Vapor Density (Air = 1)</b>	Not available.
<b>Melting Point</b>	Not available.	<b>Percent Volatile by Volume</b>	Not available.
<b>Boiling Point</b>	Not available.	<b>pH (1% water soln)</b>	Not available.
<b>Water/Oil Dist. Coeff.</b>	Not available.	<b>Solubility</b>	Miscible in water.

## Section 4: Fire and Explosion Hazard Data

<b>Flash Point (Methods)</b>	Not applicable.	<b>Autoignition Temp.</b>	Not applicable.
<b>Flammable Limits in Air by Volume</b>	Not applicable.		
<b>Flammability</b>	Not applicable.		

**Explosion Hazard** Not available.

**Haz. Comb. Prod.** Not applicable.

**Means of Extinction** Use extinguishing media suitable for surrounding materials.

### Special Fire Fighting Procedures

Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

### Unusual Fire and Explosion Hazards

Not available.

## Section 5: Health Hazard Data

**Exposure Limits (P.E.L., TLV, etc.)** Not available.

**Acute Effects** Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

**Routes of Entry** Absorbed through skin. Eye contact. **LD50/LC50** LD50: Not available. LC50: Not available.

### Effects of Overexposure

Repeated or prolonged exposure is not known to aggravate medical condition.

### Emergency and First Aid Procedures

**SKIN:** Wash contaminated skin with soap and water. **EYES:** Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. **INHALATION:** Move exposed person to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Seek medical attention. **INGESTION:** If affected person is conscious, give plenty of water to drink. Induce vomiting by touching the back of throat with fingers. Never give anything by mouth to an unconscious person. Seek medical attention.

## Section 6: Reactivity Data

**Stability** The product is stable. **Instability Temp.** Not available.

**Incompatibility** The product is photosensitive.

**Degradation Prod.** Not available. **Hazardous polymerization?** Will not occur.

**Materials to Avoid** Not available.

## Section 7: Spill or Leak Procedures

**Spill** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Disposal** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 8: Protection Equipment Information

**Equipment** Safety glasses. Lab coat. Vinyl gloves.

**Engineering Controls** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

## Section 9: Other Information

**Special Precautions** Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Follow all fire fighting procedures (Section 4).

Read label on container before using. Do not wear contact lenses when working with chemicals.

**Verified by** S. Quandt **Effective Date** Printed 8/27/2002

For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to the other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

# Fiche signalétique

## Section 1: Identification de la compagnie et du produit

Scholar<sup>TM</sup>  
Chemistry

Manufactured by:  
Columbus Chemical Industries, Inc.  
N4335 Terrikin Rd.  
Columbus, WI 53925  
TEL: (920) 623-2140

(866) 260-0501

**Nom du produit** Solution d'iode de Gram

**No. de produit** 9414406

**CAS** Non disponible.

ASSISTANCE D'URGENCE 24 HEURES CHEMTREC 800-424-9300 NIVEAU DE DANGER		
4- EXTRÊME	SANTÉ	1
3- SÉVÈRE	INFLAMMABILITÉ	0
2- MODÉRÉ		
1- FAIBLE	RÉACTIVITÉ	0
0- MINIMAL		

**Utilisations** Non disponible.

**Synonymes** Non disponible.

**Formule**

## Section 2: Ingrédients dangereux

### Nom du produit

	CAS	Conc (%)	NIP
1) Iodure de potassium	7681-11-0	0-1	S/O
2) Iode	7553-56-2	0-1	S/O
3) Bicarbonate de sodium	144-55-8	0-1	S/O
4) Eau (Non dangereux)	7732-18-5	>97	S/O

Pour les limites d'exposition (TLV, PEL), DL50 et CL50 voir la section 5 de ce document.

\* Chemical subject to the reporting of SARA Title III.

## Section 3: Données physiques

<b>Apparence</b>	Liquide.	<b>Seuil de l'odeur</b>	Non disponible.
<b>Couleur</b>	Rouille.	<b>Tension de vapeur</b>	Non disponible.
<b>Odeur</b>	Iode.	<b>Taux d'évaporation (Solvant de référence)</b>	Non disponible.
<b>Gravité spécifique (Eau = 1)</b>	Non disponible.	<b>Densité de vapeur (Air = 1)</b>	Non disponible.
<b>Point de fusion</b>	Non disponible.	<b>Pourcentage volatil en volume</b>	Non disponible.
<b>Point d'ébullition</b>	Non disponible.	<b>pH (1% soln/eau)</b>	Non disponible.
<b>Coeff. dist. eau/huile</b>	Non disponible.	<b>Solubilité</b>	Miscible dans l'eau.

## Section 4: Données sur les dangers de feu et d'explosion

<b>Point d'éclair (Méthodes)</b>	Sans objet.	<b>Temp. d'autoinflammation</b>	Sans objet.
<b>Limites d'inflammabilité dans l'air par volume</b>	Sans objet.		
<b>Inflammabilité</b>	Sans objet.		

**Risques d'explosion** Non disponible.

**Prod. comb. dang.** Sans objet.

**Moyens d'extinction** Utiliser des agents extincteurs appropriés pour les matières environnantes.

### Procédures spéciales d'extinction d'incendie

Les pompiers doivent porter un appareil respiratoire autonome à pression positive et une tenue de feu complète.

### Dangers de feu et d'explosion inhabituels

Non disponible.

## Section 5: Données sur les risques pour la santé

**Limites d'exposition (P.E.L., TLV, etc.)** Non disponible.

**Effets aigus** Très légèrement dangereux en cas de contact cutané (irritant), contact avec les yeux (irritant).

**Voies d'entrées** Absorbé par la peau. Contact avec les yeux. **DL50/CL50** DL50: Non disponible. CL50: Non disponible.

**Effets d'une surexposition**

Une exposition répétée ou prolongée ne devrait pas aggraver l'état de santé.

### Mesures d'urgence et de premiers soins

**PEAU:** Laver la peau contaminée à l'eau et au savon. **YEUX:** Rincer immédiatement à l'eau courante pendant au moins 15 minutes, en soulevant occasionnellement les paupières supérieure et inférieure. Consulter un médecin. **INHALATION:** Transporter la personne incommodée à l'air frais. Si respirer est difficile, donner de l'oxygène. S'il ne respire pas, donner la respiration artificielle. Consulter un médecin. **INGESTION:** Si la personne incommodée est consciente, lui faire boire beaucoup d'eau. Provoquer le vomissement en plaçant les doigts dans le fond de la gorge. Ne rien faire ingérer à une personne inconsciente. Consulter un médecin.

## Section 6: Données sur la réactivité

**Stabilité** Le produit est stable. **Temp. d'instabilité** Non disponible.

**Incompatibilité** Ce produit est photosensible.

**Prod. dégradation** Non disponible. **Polymérisation dangereuse?** Ne se produira pas.

**Substances à éviter** Non disponible.

## Section 7: Procédures en cas de déversement

**Déversement** Diluer avec de l'eau et absorber avec une vadrouille, ou absorber avec une substance inerte sèche et mettre dans un contenant de récupération approprié. Terminer le nettoyage en répandant de l'eau sur la surface contaminée et éliminer selon les exigences locales et régionales.

**Élimination** Les déchets doivent être éliminés conformément aux règlements fédéraux, provinciaux et municipaux sur la protection de l'environnement.

## Section 8: Information sur l'équipement de protection

**Équipement** Lunettes de sécurité. Blouse de laboratoire (sarrau). Gants en vinyle.

**Contrôles d'ingénierie** Une ventilation par aspiration à la source ou d'autres systèmes de contrôle technique sont recommandés pour maintenir les concentrations des vapeurs inférieures aux limites.

## Section 9: Autre information

**Précautions spéciales** Contacter immédiatement le personnel d'urgence. Garder le personnel non requis éloigné. Utiliser un équipement de protection adéquat (Section 8). Suivre toutes les procédures relatives à la lutte contre les incendies (Section 4).

Lire l'étiquette sur le contenant avant l'usage. Ne pas porter de verres de contact lorsque vous utilisez des produits chimiques.

Véifié par **S. Quand** Date effective **Imprimé le 8/27/2002**

Pour usage de laboratoire seulement. Pas pour usage de drogue, aliment ou pour la maison. Gardez hors de la portée des enfants..

L'information contenue dans ce document est fournie sans garantie d'aucune sorte. Les employeurs doivent utiliser cette information seulement en supplément à d'autres informations qu'ils doivent obtenir. Ils doivent faire leur propre détermination et vérifier si l'information est pertinente et complète en se basant sur toutes les autres sources disponibles et s'assurer de l'utilisation adéquate de ce produit et de la santé et de la sécurité de leurs employés.



---

### Section 1 — Chemical Product and Company Identification

---

#### Buffers (in Chemvelopes) pH 12.00

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

---

### Section 2 — Composition, Information on Ingredients

---

Sodium Phosphate, tribasic (7601-54-9) and Sodium Phosphate, dibasic (7558-79-4).

CAS#: None Established

---

### Section 3 — Hazards Identification

---

Foil package containing powdered buffer.

Irritating to skin, eyes, and mucous membrane. Avoid all body tissue contact.

#### FLINN AT-A-GLANCE

Health-0

Flammability-0

Reactivity-0

Exposure-1

Storage-0

0 is low hazard, 3 is high hazard

---

### Section 4 — First Aid Measures

---

Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Give large quantities of water. Call a physician or poison control at once.

---

### Section 5 — Fire Fighting Measures

---

Non flammable, non combustible solid.

#### NFPA CODE

None Established

---

### Section 6 — Accidental Release Measures

---

Restrict unprotected personnel from area. Sweep up, place in sealed bag or container and dispose. Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

---

### Section 7 — Handling and Storage

---

Flinn Suggested Chemical Storage Pattern: Inorganic Miscellaneous. Store with other buffers.

---

### Section 8 — Exposure Controls, Personal Protection

---

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

### Section 9 — Physical and Chemical Properties

Powdered buffer in foil package.

### Section 10 — Stability and Reactivity

Avoid heat.  
Shelf life: Good.

### Section 11 — Toxicological Information

Acute effects: Irritant	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

### Section 12 — Ecological Information

Data not yet available.

### Section 13 — Disposal Considerations

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #26a is one option.

### Section 14 — Transport Information

Shipping Name: Not regulated  
Hazard Class: N/A  
UN Number: N/A

N/A = Not applicable

### Section 15 — Regulatory Information

Not listed.

### Section 16 — Other Information

Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

**FLINN SCIENTIFIC INC.**

"Your Safer Source for Science Supplies"

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flinn@flinnsci.com www.flinnsci.com  
P.O. Box 219 Batavia IL 60510  
(800) 452-1261 Fax (866) 452-1436

---

### Section 1 — Chemical Product and Company Identification

---

## Buffers (in Chemvelopes) pH 2 thru pH 11

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

---

### Section 2 — Composition, Information on Ingredients

---

Buffers pH 2 thru pH 11

CAS#: None Established

---

### Section 3 — Hazards Identification

---

Foil package(s) containing powdered buffer.  
Body tissue irritant. Avoid all body tissue contact.

#### FLINN AT-A-GLANCE

Health-0  
Flammability-0  
Reactivity-0  
Exposure-1  
Storage-0

0 is low hazard, 3 is high hazard

---

### Section 4 — First Aid Measures

---

Call a physician, seek medical attention for further treatment, observation and support after first aid.  
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.  
Eye: Immediately flush with fresh water for 15 minutes.  
External: Wash continuously with fresh water for 15 minutes.  
Internal: Give large quantities of water. Call a physician or poison control at once.

---

### Section 5 — Fire Fighting Measures

---

Non flammable, non combustible solid.

#### NFPA CODE

None Established

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### Section 6 — Accidental Release Measures

---

Restrict unprotected personnel from area. Sweep up, place in sealed bag or container and dispose. Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

---

### Section 7 — Handling and Storage

---

Flinn Suggested Chemical Storage Pattern: Inorganic Miscellaneous. Store with other buffers.

---

### Section 8 — Exposure Controls, Personal Protection

---

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

---

### Section 9 — Physical and Chemical Properties

---

Powdered buffer(s) in foil packages (various).

---

### Section 10 — Stability and Reactivity

---

Avoid heat.  
Shelf life: Good.

---

### Section 11 — Toxicological Information

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Acute effects: Irritant	ORL-RAT LD50: N.A.
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

---

### Section 12 — Ecological Information

---

Data not yet available.

---

### Section 13 — Disposal Considerations

---

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #26a is one option.

---

### Section 14 — Transport Information

---

Shipping Name: Not regulated  
Hazard Class: N/A  
UN Number: N/A

N/A = Not applicable

---

### Section 15 — Regulatory Information

---

Not listed.

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### Section 16 — Other Information

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Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

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P.O. Box 219 Batavia IL 60510  
(800) 452-1261 Fax (866) 452-1436



# Micro Essential Laboratory, Inc.

Manufacturers of Hydrion pH papers and Hydrion pH buffers. **Founded 1934**

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## SAFETY INFORMATION

ON

## HYDRION TEST PAPERS

HYDRION TEST PAPERS ARE CLASSIFIED AS ARTICLES UNDER OSHA REGULATIONS. HYDRION TEST PAPERS DO NOT REQUIRE FORMAL MATERIAL SAFETY DATA SHEETS OR CERTIFICATES OF ANALYSIS (UNDER OSHA STANDARD - "HAZARDOUS COMMUNICATIONS" - 29 CFR 1910.1200). THEY ARE SAFE FOR SHIPMENT BY AIR, SEA OR GROUND TRANSPORTATION.

OUR TEST PAPERS CONSISTS OF INDICATOR DYES THAT HAVE BEEN IMPREGNATED INTO PAPER. THESE PAPERS ARE TO BE USED IN VITRO ONLY AND NOT TO BE USED INTERNALLY. THE CONCENTRATION OF IMPREGNATED DYE IS SMALL.

HYDRION TEST PAPERS CONSIST OF STABLE, NON-REACTIVE MATERIALS. THEY ARE NON-VOLATILE AND NOT RADIOACTIVE. HYDRION TEST PAPERS AND THEIR COMPONENTS DO NOT CONTAIN LATEX, MERCURY, OR LEAD. THESE PAPERS CAN BE DISCARDED ACCORDING TO LOCAL ENVIRONMENTAL WASTE PROCEDURES AND REGULATIONS.

HYDRION TEST PAPERS SHOULD BE STORED IN DRY LOCATIONS AND SHOULD BE PROTECTED FROM SUNLIGHT.

For any additional information, please contact Technical Support at (718) 338-3618 between 9:00am-3:00pm, Eastern Standard Time, Monday-Friday:

### MSDS Information

[Back To Top](#)

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**Micro Essential Laboratory, Inc.**  
**P.O. Box 100824**  
**4224 Avenue H**  
**Brooklyn, NY 11210**

**Tel..... 718-338-3618**



## MATERIAL SAFETY DATA SHEET

HYDROCHLORIC ACID, SAFETY BOTTLE  
CAROLINA BIOLOGICAL

Revised: 15/05/08  
Replaces: 10/07/07  
Printed: 20/05/08

### **1. PRODUCT DESCRIPTION**

Product Name: Hydrochloric Acid  
Product Code(s): 86-7760, 86-7762, 86-7790, 86-7792, 86-7791, 86-7793  
Size: 500ml, 2.5 L  
Chemical Name: Hydrochloric Acid  
CAS Number: 7647-01-0  
Formula: HCl  
Synonyms: Muriatic Acid  
Distributor: Carolina Biological Supply Company  
2700 York Road  
Burlington, NC 27215

Chemical Information: 800-227-1150 (8am-5pm (ET) M-F)  
Chemtrec (Transportation Spill Response 24 hours): 800-424-9300

### **2. COMPOSITION/INFORMATION ON INGREDIENTS**

Principle Hazardous Components: Hydrochloric Acid (CAS#7647-01-0) 37%  
TLV and PEL units: OSHA-PEL 5 ppm ceiling  
ACGIH-TLV 5 ppm ceiling

### **3. HAZARD IDENTIFICATION**

Emergency Overview: Causes severe burns. May be fatal if inhaled or swallowed. Vapor extremely irritating. May cause damage to respiratory passages and lungs.

Potential Health Effects:

Eyes: May cause irritation.

Skin: May cause irritation.

Ingestion: May cause gastrointestinal discomfort.

Inhalation: May cause irritation to respiratory tract.

### **4. FIRST AID MEASURES**

Emergency and First Aid Procedures:

Eyes - Flush with water for at least 15 minutes, raising and lowering eyelids occasionally. Get medical attention if irritation persists.  
Skin - Thoroughly wash exposed area for at least 15 minutes. Remove contaminated clothing. Launder contaminated clothing before reuse. Get medical attention if irritation persists.

Ingestion - Do not induce vomiting. If swallowed, if conscious, give plenty of water immediately and call a physician or poison control center. Never give anything by mouth to an unconscious person.

Inhalation - Remove to fresh air. Give oxygen if breathing is difficult; give artificial respiration if breathing has stopped. Keep person warm, quiet, and get medical attention.

### **5. FIREFIGHTING PROCEDURES**

Flash Point(Method Used): Non-combustible

NFPA Rating: Health: 3  
Flammability: 0  
Reactivity: 0

Extinguisher Media: Water spray

Flammable Limits in Air % by Volume: No data available.

Autoignition Temperature: No data available

Special Firefighting Procedures:

Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: None cited

## MATERIAL SAFETY DATA SHEET

HYDROCHLORIC ACID, SAFETY BOTTLE  
CAROLINA BIOLOGICAL

Revised: 15/05/08  
Replaces: 10/07/07  
Printed: 20/05/08

### **6. SPILL OR LEAK PROCEDURES**

Steps to be Taken in Case Material is Released or Spilled:

Ventilate area of spill. Eliminate all sources of ignition. Remove all non-essential personnel from area. Clean-up personnel should wear proper protective equipment and clothing. Absorb material with suitable absorbent and containerize for disposal.

### **7. SPECIAL PRECAUTIONS**

Precautions to be Taken in Handling or Storing: Keep container tightly closed

in a cool, well ventilated area away from incompatible materials.

Other Precautions: Handle empty containers with caution.

### **8. SPECIAL PROTECTION INFORMATION**

Respiratory Protection(Specify Type):

A NIOSH/MSHA chemical cartridge respirator should be worn if PEL or TLV is exceeded.

Ventilation:

Local Exhaust: Yes

Mechanical(General): Yes

Special: No

Other: No

Protective Gloves:

Rubber, neoprene, PVC, or equivalent.

Eye Protection:

Splash proof chemical safety goggles should be worn at all times.

Other Protective Clothing or Equipment:

Lab apron, eye wash, and safety shower.

### **9. PHYSICAL DATA**

Molecular Weight: 36.46

Melting Point: -74 C

Boiling Point: 110 C

Vapor Pressure(mm Hg): 160 at 20 C

Vapor Density(Air=1): 1.25

Specific Gravity(H<sub>2</sub>O=1): 1.1885

Percent Volatile by Volume: 99.9+

Evaporation Rate(BuAc=1): 2.0

Solubility in Water: Miscible

Appearance and Odor: Clear, colorless liquid with an acrid odor.

### **10. REACTIVITY DATA**

Stability: Stable

Conditions to Avoid: Heat, contact with metals.

Incompatibility(Materials to Avoid): Bases, alkalies and amines

Hazardous Decomposition Products: Toxic hydrogen chloride gas

Hazardous Polymerization: Will not occur

### **11. TOXICITY DATA**

Toxicity Data: ihl-hmn LDLo: 1300ppm/30M

Effects of Overexposure:

Acute: See section 3

Chronic: Tests on laboratory animals indicate material may produce

adverse mutagenic and reproductive effects.



### MATERIAL SAFETY DATA SHEET

HYDROCHLORIC ACID, SAFETY BOTTLE  
CAROLINA BIOLOGICAL

Revised: 15/05/08  
Replaces: 10/07/07  
Printed: 20/05/08

Conditions Aggravated by Overexposure: Respiratory conditions  
Target Organs: No data available  
Primary Route(s) of Entry: Inhalation, ingestion or skin contact

#### 12. ECOLOGICAL DATA

EPA Waste Numbers: D002

#### 13. DISPOSAL INFORMATION

Waste Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations.  
Always contact a permitted waste disposer (TSD) to assure compliance.

#### 14. TRANSPORT INFORMATION

Description: Hydrochloric acid, 8, UN1789, II

#### 15. REGULATORY INFORMATION

EPA TSCA Status: On TSCA Inventory  
Hazard Category for SARA Section 311/312 Reporting: Acute

Product or Components	SARA EHS Sec. 302 TPQ	SARA Sec. 313		CERCLA Sec. 103 RQ lbs.	RCRA Sec. 261.33
		Chemicals Name List	Chemical Category		

Hydrochloric acid	500	Yes	No	5000	No
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#### 16. ADDITIONAL INFORMATION

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. Any employer must carefully assess the applicability of any information contained herein in regards to the particular use to which the employer puts the material.

##### Glossary

- ACGIH.....American Conference of Governmental Industrial Hygienists
- CAS Number..Chemical Abstracts Service Number
- CERCLA.....Comprehensive Environmental Response, Compensation, and Liability Act
- DOT.....U.S. Department of Transportation
- IARC.....International Agency of Research on Cancer
- mppcf.....million particles per cubic foot
- N/A.....Not Available
- NTP.....National Toxicology Program
- OSHA.....Occupational Safety and Health Administration
- PEL.....Permissible Exposure Limit
- ppm.....parts per million
- RCRA.....Resource Conservation and Recovery Act
- SARA.....Superfund Amendments and Reauthorization Act
- TLV.....Threshold Limit Value
- TSCA.....Toxic Substances Control Act



# FLINN SCIENTIFIC, INC.

## Material Safety Data Sheet (MSDS)

MSDS #: 395.30

Revision Date: July 10, 2009

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Hydrochloric Acid Solution (0.5 M - 3 M)

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

### SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Hydrochloric Acid (7647-01-0) 2-10%, Water (7732-18-5) 90-98%

Synonym: 0.5 M-3 M hydrochloric acid

CAS#: None Established

### SECTION 3 — HAZARDS IDENTIFICATION

Clear liquid; pungent odor.

Toxic by inhalation and ingestion. Severe body tissue irritant. Corrosive to eyes.

Avoid all body contact.

#### FLINN AT-A-GLANCE

Health-1

Flammability-0

Reactivity-1

Exposure-2

Storage-2

0 is low hazard, 3 is high hazard

### SECTION 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation, and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for at least 15 minutes.

External: Wash continuously with fresh water for at least 15 minutes.

Internal: Give large quantities of water or milk, followed by a gastric antacid, such as Milk of Magnesia. Do not induce vomiting.

Call a physician or poison control at once.

### SECTION 5 — FIRE FIGHTING MEASURES

Nonflammable liquid.

**Fire Fighting Instructions:** Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

None  
established

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area. Ventilate area and contain spill with sand or other inert absorbent material, neutralize with sodium bicarbonate or calcium hydroxide and deposit in sealed bag or container. See Sections 8 and 13 for further information.

### SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #9. Store with inorganic acids.

Store in a dedicated acid cabinet; if an acid cabinet is not available, store in Flinn Saf-Cube. Use and dispense in a hood or well-ventilated lab only.

### SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and chemical-resistant apron.

Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

---

**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

---

Clear liquid. pH<1  
Solubility: Soluble in water and alcohol.  
Formula: HCl  
Formula Weight: 36.46

---

**SECTION 10 — STABILITY AND REACTIVITY**

---

Avoid contact with strong oxidizers, bases, amines, and alkali metals. Corrodes metal including stainless steel.  
Shelf Life: Good, if stored safely.

---

**SECTION 11 — TOXICOLOGICAL INFORMATION**

---

Acute effects: Corrosive  
Chronic effects: Corrosive to teeth.  
Target organs: Respiratory tract, teeth, skin.

ORL-RBT LD<sub>50</sub>: 900 mg/kg as hydrochloric acid  
IHL-RAT LC<sub>50</sub>: 3124 ppm/1hour as hydrochloric acid  
SKN-RBT LD<sub>50</sub>: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

---

**SECTION 12 — ECOLOGICAL INFORMATION**

---

Does not biodegrade in soil, may be toxic to aquatic life.

---

**SECTION 13 — DISPOSAL CONSIDERATIONS**

---

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #24b is one option.

---

**SECTION 14 — TRANSPORT INFORMATION**

---

Shipping Name: Hydrochloric acid  
Hazard Class: 8, Corrosive  
UN Number: UN1789  
N/A = Not applicable

---

**SECTION 15 — REGULATORY INFORMATION**

---

TSCA-listed, EINECS-listed (231-595-7), RCRA code D002.

---

**SECTION 16 — OTHER INFORMATION**

---

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**Consult your copy of the Flinn Chemical Catalog/Reference Manual  
for additional information about laboratory chemicals**

# FLINN SCIENTIFIC, INC.

## Material Safety Data Sheet (MSDS)

MSDS #: 395.20

Revision Date: November 15, 2010

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Hydrochloric Acid Solution (<0.5M)

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

### SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Hydrochloric acid (7647-01-0) <2%, water (7732-18-5) >98%

Synonym: 0.5M or less hydrochloric acid

CAS#: None established

### SECTION 3 — HAZARDS IDENTIFICATION

Clear acidic solution. Pungent chlorine odor.

Slightly toxic by inhalation and ingestion. Severe body tissue irritant. Corrosive to eyes.

Avoid all body contact.

#### FLINN AT-A-GLANCE

Health-0

Flammability-0

Reactivity-0

Exposure-1

Storage-1

0 is low hazard, 3 is high hazard

### SECTION 4 — FIRST AID MEASURES

Call a physician and seek medical attention for further treatment, observation, and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped, give artificial respiration immediately.

Eye: Immediately flush with fresh water for at least 15 minutes.

External: Wash continuously with fresh water for at least 15 minutes.

Internal: Give large quantities of water or milk, followed by a gastric antacid, such as milk of magnesia. Do not induce vomiting.

Call a physician or poison control at once.

### SECTION 5 — FIRE FIGHTING MEASURES

Nonflammable liquid.

**Fire Fighting Instructions:** Use a triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

None  
established

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from the area. Ventilate area and contain the spill with sand or other inert absorbent material, neutralize with sodium bicarbonate or calcium hydroxide, and deposit in a sealed bag or container. See Sections 8 and 13 for further information.

### SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #9. Store with inorganic acids.

Store in a dedicated acid cabinet or in chemical storage area isolated from metals and bases.

### SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and chemical-resistant apron. Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

Exposure guidelines: PEL-ceiling 5 ppm (as concentrated HCl) (OSHA)

**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

Clear liquid with a pungent odor.

Solubility: Soluble in water and alcohol.

Formula: HCl

Formula Weight: 36.46

pH < 1

**SECTION 10 — STABILITY AND REACTIVITY**

Avoid contact with strong oxidizers, bases, amines, and alkali metals. Corrodes metal.

Shelf Life: Good, if stored safely.

**SECTION 11 — TOXICOLOGICAL INFORMATION**

Acute effects: Irritating to skin and eyes.

Chronic effects: N.A.

Target organs: Respiratory tract, teeth, skin.

ORL-RBT LD<sub>50</sub>: 900 mg/kg as hydrochloric acid

IHL-RAT LC<sub>50</sub>: 3124 ppm/1hour as hydrochloric acid

SKN-RBT LD<sub>50</sub>: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

**SECTION 12 — ECOLOGICAL INFORMATION**

Does not biodegrade in soil, may be toxic to aquatic life.

**SECTION 13 — DISPOSAL CONSIDERATIONS**

Please consult with state and local regulations.

Flinn Suggested Disposal Method #24b is one option.

**SECTION 14 — TRANSPORT INFORMATION**

Shipping Name: Hydrochloric acid

Hazard Class: 8, Corrosive

UN Number: UN1789

N/A = Not applicable

**SECTION 15 — REGULATORY INFORMATION**

TSCA-listed, EINECS-listed (231-595-7), RCRA code D002.

**SECTION 16 — OTHER INFORMATION**

This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).

**Consult your copy of the *Flinn Science Catalog/Reference Manual*  
for additional information about laboratory chemicals.**

# FLINN SCIENTIFIC, INC.

## Material Safety Data Sheet (MSDS)

MSDS #: 395.00

Revision Date: July 12, 2010

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Hydrochloric Acid, 30% - 40%

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

### SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Hydrochloric acid (7647-01-0) 30-40% (>9M); water (7732-18-5) 60-70%

Synonym: Concentrated hydrochloric acid (37%); muriatic acid

CAS#: None established

### SECTION 3 — HAZARDS IDENTIFICATION

Clear liquid with a pungent odor; constantly fuming.

Highly toxic by inhalation and ingestion.

Severely corrosive to all body tissues, especially skin and eyes. Avoid all body contact.

#### FLINN AT-A-GLANCE

Health-3

Flammability-0

Reactivity-2

Exposure-3

Storage-3

0 is low hazard, 3 is high hazard

### SECTION 4 — FIRST AID MEASURES

Call a physician and seek medical attention for further treatment, observation, and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped, give artificial respiration immediately.

Eye: Immediately flush with fresh water for at least 15 minutes.

External: Wash continuously with fresh water for at least 15 minutes.

Internal: Give large quantities of water or milk, followed by a gastric antacid, such as milk of magnesia. Do not induce vomiting.

Call a physician or poison control at once.

### SECTION 5 — FIRE FIGHTING MEASURES

Nonflammable liquid.

When heated to decomposition, emits toxic fumes of HCl and Cl<sub>2</sub> or explosive H<sub>2</sub> gas.

**Fire Fighting Instructions:** Use a triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

None

established

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from the area. Remove all ignition sources and ventilate area. Contain the spill with sand or other inert absorbent material, neutralize with sodium bicarbonate or calcium hydroxide, and deposit in a sealed bag or container. See Sections 8 and 13 for further information.

### SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #9. Store with inorganic acids.

Store in a dedicated acid cabinet and away from any source of water; if an acid cabinet is not available, store in Flinn Saf-Cube.

Use and dispense in a hood.

### SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and a chemical-resistant apron. Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

Exposure guidelines: PEL-ceiling (concentrated) 5 ppm (OSHA)

---

**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

---

Colorless, fuming liquid with a pungent odor.

Solubility: Soluble in water and alcohol.

Formula: HCl

Formula Weight: 36.46

Density 1.60 g/cm<sup>3</sup>

Specific gravity: 1.2 (concentrated HCl)

---

**SECTION 10 — STABILITY AND REACTIVITY**

---

Avoid contact with strong oxidizers, bases, metals, metal oxides, hydroxides, amines, and other alkaline materials. Incompatible with cyanides, sulfides, and formaldehyde. Corrodes metal, including steel. Produces heat when diluted with water.

Shelf Life: Good, if stored safely.

---

**SECTION 11 — TOXICOLOGICAL INFORMATION**

---

Acute effects: Poison, corrosive.

Chronic effects: Corrosive to teeth.

Target organs: Respiratory tract, teeth, skin.

ORL-RBT LD<sub>50</sub>: 900 mg/kgIHL-RAT LC<sub>50</sub>: 3124 ppm/1hourSKN-RBT LD<sub>50</sub>: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

---

**SECTION 12 — ECOLOGICAL INFORMATION**

---

Does not biodegrade in soil, may be toxic to aquatic life.

---

**SECTION 13 — DISPOSAL CONSIDERATIONS**

---

Please consult with state and local regulations.

Flinn Suggested Disposal Method #24b is one option.

---

**SECTION 14 — TRANSPORT INFORMATION**

---

Shipping Name: Hydrochloric acid

Hazard Class: 8, Corrosive

UN Number: UN1789

N/A = Not applicable

---

**SECTION 15 — REGULATORY INFORMATION**

---

TSCA-listed, EINECS-listed (231-595-7), RCRA code D002.

---

**SECTION 16 — OTHER INFORMATION**

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**Consult your copy of the *Flinn Science Catalog/Reference Manual*  
for additional information about laboratory chemicals.**



**MATERIAL SAFETY DATA SHEET**  
**MSDS L-159**                      **REVISION 5**

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**DISTRIBUTED BY:**  
THE DIAL CORPORATION  
CENTER FOR INNOVATION  
15101 NORTH SCOTTSDALE ROAD  
SCOTTSDALE, ARIZONA 85254-9934

MEDICAL EMERGENCIES: 1-888-689-9082  
CHEMTREC: 1-800-424-9300 (24 Hours Daily)  
OTHER INFORMATION: 1-888-468-6673

**SUBSTANCE IDENTIFICATION**

**SUBSTANCE:** LIQUID ANTIMICROBIAL SOAP

**TRADE NAMES/SYNONYMS:** PROFESSIONAL LIQUID DIAL ANTIMICROBIAL SOAP (BCM); PROFESSIONAL LIQUID DIAL ANTIMICROBIAL SOAP with MOISTURIZERS & VITAMIN E (BCM)

**CHEMICAL FAMILY:** Mixture

**I.D. NUMBERS:** 901729 (Liquid Dial), 901750 (Liquid Dial with Moisturizers & Vitamin E)

**NFPA RATINGS (Scale 0-4, where 4=high degree of hazard):** HEALTH=1 FLAMMABILITY=1 REACTIVITY=0  
**HMIS RATINGS (Scale 0-4, where 4=severe hazard):** HEALTH=1 FLAMMABILITY=1 REACTIVITY=0

This product is labeled in accordance with guidelines set forth in the Food, Drug, and Cosmetic Act. The use pattern and exposure in the workplace are generally not consistent with those experienced by consumers. The requirements of the Occupational Safety and Health Administration applicable to this Material Safety Data Sheet may differ from the requirements of the FD & C Act and as a result, this MSDS may contain additional health hazard information not pertinent to consumer use and not found on the product label.

**HAZARDOUS INGREDIENTS INFORMATION**

**COMPONENT: AMMONIUM LAURYL SULFATE** CAS# 2235-54-3

**COMPONENT: GLYCERIN** CAS# 56-81-5  
(as mist):  
5 mg/m<sup>3</sup> OSHA TWA (respirable fraction); 10 mg/m<sup>3</sup> OSHA TWA (total mist)  
10 mg/m<sup>3</sup> ACGIH TWA (mist)

**COMPONENT: LAURAMIDE DEA** CAS# 120-40-1

**COMPONENT: SODIUM LAURETH SULFATE** CAS# 9004-82-4

Carcinogen status of components: Not listed as carcinogenic by NTP, IARC, or OSHA.

**PHYSICAL AND CHEMICAL DATA**

**DESCRIPTION:** Clear gold or opaque white liquid with a pleasant fragrance.

**BOILING POINT:** >200°F (>93°C)                      **SPECIFIC GRAVITY:** 1.017 ± 0.005 @ 25°C

**pH:** 5.8-6.7 @ 25°C                      **VISCOSITY:** 3000-11000 cps @ 25°C  
(Brookfield LVF, Spindle #3, 12 rpm)

**SOLUBILITY IN WATER:** Nearly complete.

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**FIRE AND EXPLOSION DATA**

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**FIRE AND EXPLOSION HAZARD** - Slight fire hazard when exposed to heat or flame.

**FIRE FIGHTING MEDIA** - Dry chemical, carbon dioxide, water spray or regular foam. For larger fires, use water spray, fog or regular foam.

**FIRE FIGHTING** - Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Extinguish only if flow can be stopped; use flooding amounts of water as a fog, solid streams may be ineffective. Avoid breathing vapors, keep upwind.

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**HEALTH HAZARD DATA**

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**NOTE:** The acute health effects described below are those which could potentially occur for the finished product. They are based on the toxicology information available for the finished product and/or each hazardous ingredient, and are consistent with the product type and the likelihood of a specific route of exposure. Known chronic health effects related to exposure to a specific ingredient are indicated.

**ACUTE HEALTH EFFECTS:**

- INHALATION:** Unlikely to occur due to the physical properties of the product.
- SKIN CONTACT:** Repeated or prolonged excessive exposure may cause irritation or dermatitis.
- EYE CONTACT:** May cause moderate to severe irritation, with possibility of corneal injury.
- INGESTION:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

**CHRONIC HEALTH EFFECTS:**

Due to the nature and composition of this product, no subchronic/chronic health effects are anticipated. Nonetheless, the following effects have been reported for one of the product's components:

This product may contain greater than 0.1% DEA. The National Toxicology Program has concluded that there is clear evidence of liver tumor and some evidence of kidney tumor in mice dermally exposed for their lifetime to diethanolamine.

The significance of these findings and their relevance to humans is not clear. Diethanolamine is not genotoxic (neither mutagenic or clastogenic) and did not induce tumors in rats or in transgenic mice similarly treated. Additional research to better understand these findings and their relevance to humans, if any, is underway. Normal use of this product is not expected to produce these effects.

**MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE:** Pre-existing skin conditions.

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**EMERGENCY AND FIRST AID PROCEDURES**

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**INHALATION:** Immediately remove from exposure area to fresh air. Keep affected person warm and at rest. Treat symptomatically and supportively. Contact physician or local poison control center. If breathing has stopped, give artificial respiration, and get medical attention immediately.

**SKIN CONTACT:** Rinse affected area with plenty of water until no evidence of product remains. Get medical attention if irritation persists.

**EYE CONTACT:** Immediately rinse eyes with plenty of water, occasionally lifting upper and lower lids, until no evidence of product remains. Get medical attention if pain or irritation persist.

**INGESTION:** Treat symptomatically and supportively. Maintain airway and respiration. If vomiting occurs, keep head below hips to prevent aspiration. Dilution by rinsing the mouth and giving water or milk to drink is generally recommended. If unconscious, the victim should not be given anything to drink. Contact physician or local poison control center.

## REACTIVITY

**REACTIVITY** - Stable under normal temperatures and pressures.

**INCOMPATIBILITIES:** Strong oxidizers, acids, peroxides.

**DECOMPOSITION** - Thermal decomposition may release toxic and/or hazardous gases, including ammonia.

**POLYMERIZATION** - Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

## STORAGE AND DISPOSAL

Store away from incompatible substances. Observe all federal, state and local regulations when storing or disposing of this substance.

## CONDITIONS TO AVOID

Avoid contact with excessive heat and incompatible substances.

## SPILL AND LEAK PROCEDURES

**OCCUPATIONAL SPILL** - Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away; isolate hazard area and restrict entry.

## OCCUPATIONAL PROTECTIVE EQUIPMENT

**VENTILATION** - Provide local exhaust or general dilution ventilation to keep exposure to airborne contaminants below the permissible exposure limits where mists or vapors may be generated.

**RESPIRATOR** - Air contamination monitoring should be carried out where mists or vapors are likely to be generated, to assure that the employees are not exposed to airborne contaminants above the permissible exposure limits. If respiratory protection is required, it must be based on the contamination levels found in the workplace, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

**FOR FIRE FIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS** - Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

**CLOTHING** - Protective clothing is required where repeated or prolonged skin contact may occur.

GLOVES - Chemical-resistant gloves are required where repeated or prolonged skin contact may occur.

EYE PROTECTION - Safety glasses are required to prevent eye contact where splashing of product may occur.

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### REGULATORY INFORMATION

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DOT FLAMMABILITY CLASSIFICATION: Not applicable.

EPA - SARA TITLE III SECTION 313: Not applicable – Consumer product.

TSCA: All components of this product are listed or are exempted or excluded from listing on the U.S. Toxic Substances Control Act (TSCA) chemical substance inventory.

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The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, the Dial Corporation makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, the Dial Corporation will not be responsible for damages of any kind resulting from the use of or reliance upon such information. No representations, or warranties, either expressed or implied of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to the information set forth herein or to the product to which the information refers.

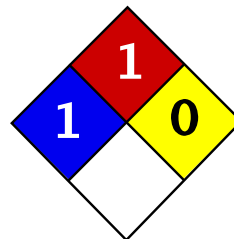
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MSDS CREATION DATE: 05/20/96

SUPERSEDES: 7/24/98 Rev. 4

REVISION DATE: 11/02/00

REVISION: Updated Substance Identification and Fire and Explosion Data.



Health	1
Fire	1
Reactivity	0
Personal Protection	A

## Material Safety Data Sheet Litmus Paper (All Colors) MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Litmus Paper (All Colors)

**Catalog Codes:** SLL1807, SLL1219, SLL1597

**CAS#:** Mixture.

**RTECS:** Not applicable.

**TSCA:** TSCA 8(b) inventory: Cellulose

**CI#:** Not available.

**Synonym:**

**Chemical Name:** Not applicable.

**Chemical Formula:** Not applicable.

**Contact Information:**

**Sciencelab.com, Inc.**  
14025 Smith Rd.  
Houston, Texas 77396

US Sales: **1-800-901-7247**  
International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**  
1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Litmus	1393-92-6	1
Cellulose	9004-34-6	99

**Toxicological Data on Ingredients:** Litmus LD50: Not available. LC50: Not available. Cellulose LD50: Not available. LC50: Not available.

### Section 3: Hazards Identification

**Potential Acute Health Effects:** Slightly hazardous in case of eye contact (irritant), of ingestion, of inhalation. Non-irritant for skin.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to lungs, mucous membranes.

Repeated or prolonged exposure to the substance can produce target organs damage.

### Section 4: First Aid Measures

**Eye Contact:** No known effect on eye contact, rinse with water for a few minutes.

**Skin Contact:** No known effect on skin contact, rinse with water for a few minutes.

**Serious Skin Contact:** Not available.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

### Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

**Precautions:**

Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust.

**Storage:**

Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

### Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Cellulose

TWA: 10 CEIL: 20 (mg/m<sup>3</sup>) from ACGIH [1995]

Consult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Not available.

**pH (1% soln/water):** Not available.

**Boiling Point:** Not available.

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Not available.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Not available.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Not available.

**Toxicity to Animals:**

LD50: Not available.

LC50: Not available.

**Chronic Effects on Humans:** The substance is toxic to lungs, mucous membranes.

**Other Toxic Effects on Humans:**

Slightly hazardous in case of ingestion, of inhalation.

Non-irritant for skin.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations



**Waste Disposal:**

### Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

### Section 15: Other Regulatory Information

**Federal and State Regulations:**

Pennsylvania RTK: Cellulose

TSCA 8(b) inventory: Cellulose

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):**

This product is not classified according to the EU regulations.

**HMIS (U.S.A.):**

**Health Hazard:** 1

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** a

**National Fire Protection Association (U.S.A.):**

**Health:** 1

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Not applicable.

Lab coat.

Wear appropriate respirator when ventilation is inadequate.

Safety glasses.

### Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/09/2005 05:59 PM

**Last Updated:** 10/09/2005 05:59 PM

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## Material Safety Data Sheet

### MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

## HYDRION BUFFER pH-10.00

### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 10.00  
**Chemical Formula:** SODIUM CARBONATE AND SODIUM BICARBONATE  
**CAS Number:** 497-19-8 AND 144-55-8  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
SODIUM CARBONATE	497-19-8	50.0-70.0
SODIUM BICARBONATE	144-55-8	30.0-50.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
SODIUM CARBONATE TOXICITY(oral-rat) LD 50 4090 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab	None Estab.
SODIUM BICARBONATE TOXICITY(oral-rat) LD 50 4220 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab	None Estab	None Estab.

### Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

**HMIS**  
**H #0**  
**F #0**  
**R #0**  
**PPE†**

#### Potential Health Effects

**Acute Effects**  
**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

## HYDRION BUFFER pH - 10.00

## Section 5 - Fire-Fighting Measures

**Flash Point:** NON FLAMMABLE

**LEL:** N/A

**UEL:** N/A

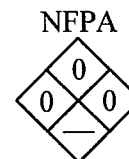
**Flammability Classification:**NON FLAMMABLE

**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA

**Hazardous Combustion Products:** MAY RELEASE CARBON MONOXIDE IF INVOLVED IN A FIRE.

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



## Section 6 - Accidental Release Measures

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.

**Clean-up Technique :** COVER SPILLED MATERIAL WITH A DRY ACID, SUCH AS CITRIC OR BORIC. SCOOP UP SLURRY INTO A LARGE BEAKER. ADJUST TO A pH BETWEEN 6 AND 9 WITH A DILUTED ACID, SUCH AS SULFURIC OR CITRIC. FLUSH REACTED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER.

**Evacuation Procedure :** EVACUATE AS NEEDED TO PERFORM SPILL CLEAN-UP. IF CONDITIONS WARRANT, INCREASE THE SIZE OF EVACUATION.

**Special Instructions (for accidental release) :** NOT APPLICABLE.

**304 EHS RQ (40 CFR 355) :** NOT APPLICABLE.

**D.O.T. Emergency Response guide Number :** NOT ALLOCATED.

## Section 7 - Handling and Storage

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.

**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*

**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.

**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.

**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.

**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.

**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT.**

**WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

## Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:**

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:**

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**HYDRION BUFFER pH- 10.00**

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Physical and Chemical Properties**

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Sodium Carbonate 105.99 Grams Sodium Bicarbonate 84.01</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 1</p> <p><b>pH:</b> 10.00@ 25 C</p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Freezing/Melting Point:</b> NDA</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
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**Section 10 - Stability and Reactivity**

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH STRONG ACID, ALUMINIUM, FLOURINE, PHOSPHORUS PENTOXIDE AND AMMONIUM PHOSPHATE MONOBASIC.

**Section 11- Toxicological Information**

<p><b>Eye Effects:</b> MAY CAUSE EYE IRRITATION</p> <p><b>Skin Effects:</b> IRRITATING TO THE SKIN AND MUCOUS MEMBRANES</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 4090mg/kg -SODIUM CARBONATE  4220mg/kg- SODIUM BICARBONATE</p> <p><b>Carcinogenicity:</b> NOT REPORTED <b>Mutagenicity:</b> NOT REPORTED <b>Teratogenicity:</b> NOT REPORTED</p>
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**Section 12 - Ecological Information**

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

**Section 13 - Disposal Considerations**

**EPA Waste ID Number :** NONE

**Special Instructions (Disposal) :** ADJUST TO A pH BETWEEN 6 AND 9 WITH A DILUTED ACID, SUCH AS SULFURIC OR CITRIC. FLUSH REACTED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER.

**Empty Containers :** RINSE THREE TIMES WITH AN APPROPRIATE SOLVENT. DISPOSE OF EMPTY CONTAINER AS NORMAL TRASH.

**Notice ( Disposal) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATION

**HYDRION BUFFER pH - 10.00**

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT CURRENTLY  
REGULATED**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2003**

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE. THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

### HYDRION BUFFER pH-12.00

#### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 12.00  
**Chemical Formula:** SODIUM PHOSPHATE TRIBASIC AND SODIUM PHOSPHATE DIBASIC  
**CAS Number:** 7601-54-9 AND 7558-79-4  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

#### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
SODIUM PHOSPHATE TRIBASIC	7601-54-9	60.0-80.0
SODIUM PHOSPHATE DIBASIC	7558-79-4	20.0-40.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
SODIUM PHOSPHATE TRIBASIC TOXICITY(oral-rat) LD 50 7400 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
SODIUM PHOSPHATE DIBASIC TOXICITY(oral-rat) LD 50 17 g/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.

#### Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

<b>HMIS</b>
H # 0
F # 0
R # 0
PPE†

#### Potential Health Effects

**Acute Effects**

**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

#### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**HYDRION BUFFER pH - 12.00**

**Section 5 - Fire-Fighting Measures**

**Flash Point:** NON FLAMMABLE

**LEL:** N/A

**UEL:** N/A

**Flammability Classification:**NON FLAMMABLE

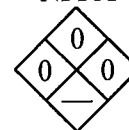
**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA

**Hazardous Combustion Products:** MAY RELEASE FUMES OF TOXIC PHOSPHORUS OXIDE IF INVOLVED IN A FIRE.

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

NFPA



**Section 6 - Accidental Release Measures**

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.

**Containment Technique:** STOP SPILLED MATERIAL FROM BEING RELEASED TO THE ENVIRONMENT.

**Clean-up Technique :** COVER SPILLED MATERIAL WITH A DRY ACID, SUCH AS CITRIC OR BORIC. SCOOP UP SLURRY INTO A LARGE BEAKER. ADJUST TO A pH BETWEEN 6 AND 9 WITH A DILUTED ACID, SUCH AS SULFURIC OR CITRIC. FLUSH REACTED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER.

**Evacuation Procedure :** EVACUATE AS NEEDED TO PERFORM SPILL CLEAN-UP. IF CONDITIONS WARRANT, INCREASE THE SIZE OF EVACUATION.

**Special Instructions (for accidental release) :** NOT APPLICABLE.

**304 EHS RQ (40 CFR 355) :** NOT APPLICABLE.

**D.O.T. Emergency Response guide Number :** NOT ALLOCATED.

**Section 7 - Handling and Storage**

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.

**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*

**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.

**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.

**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.

**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.

**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

**Section 8 - Exposure Controls / Personal Protection**

**Engineering Controls:**

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:**



### HYDRION BUFFER pH- 12.00

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.  
*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

### Section 9 - Physical and Chemical Properties

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Sodium Phosphate Tribasic 380.12 Grams Sodium Phosphate Dibasic 141.96</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 1</p> <p><b>pH:</b> 12.00@ 25 C</p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Freezing/Melting Point:</b> NDA</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
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### Section 10 - Stability and Reactivity

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** MATERIAL IS STRONGLY CAUSTIC. AVOID CONTACT WITH STRONG ACIDS. CONTACT WITH STRONG ACIDS GENERATES EXCESS HEAT. THERMAL DECOMPOSITION PRODUCES FUMES OF PHOSPHOROUS OXIDE.

### Section 11- Toxicological Information

<p><b>Eye Effects:</b> MAY CAUSE EYE IRRITATION</p> <p><b>Skin Effects:</b> IRRITATING TO THE SKIN AND MUCOUS MEMBRANES</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 7400mg/kg -SODIUM PHOSPHATE TRIBASIC 4220mg/kg- SODIUM BICARBONATE</p> <p><b>Carcinogenicity:</b> NOT REPORTED</p> <p><b>Mutagenicity:</b> NOT REPORTED</p> <p><b>Teratogenicity:</b> NOT REPORTED</p>
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### Section 12 - Ecological Information

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

### Section 13 - Disposal Considerations

EPA Waste ID Number : NONE

**HYDRION BUFFER pH - 12.00**

**Special Instructions (Disposal) :** ADJUST TO A pH BETWEEN 6 AND 9 WITH A DILUTED ACID, SUCH AS SULFURIC OR CITRIC. FLUSH REACTED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER.

**Empty Containers :** RINSE THREE TIMES WITH AN APPROPRIATE SOLVENT. DISPOSE OF EMPTY CONTAINER AS NORMAL TRASH.

**Notice ( Disposal) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE

CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATION.

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT CURRENTLY REGULATED**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2003**

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE. THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

### HYDRION BUFFER pH-4.00

#### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 4.00  
**Chemical Formula:** POTASSIUM BIPHTHALATE  
**CAS Number:** 877-24-7  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

#### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
POTASSIUM BIPHTHALATE	877-24-7	100.00

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
POTASSIUM BIPHTHALATE							
TOXICITY(oral-rat) LD 50 3200 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.

#### Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

**HMIS**  
**H** # 0  
**F** # 0  
**R** # 0  
**PPE** †

#### Potential Health Effects

**Acute Effects**

**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

#### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

## HYDRION BUFFER pH - 4.00

### Section 5 - Fire-Fighting Measures

**Flash Point:** NON FLAMMABLE

**LEL:** N/A

**UEL:** N/A

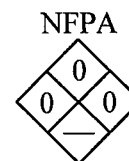
**Flammability Classification:** NON FLAMMABLE

**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA

**Hazardous Combustion Products:** MAY RELEASE FUMES OF PHOSPHORUS OXIDE IF INVOLVED IN FIRE.

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



### Section 6 - Accidental Release Measures

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.

**Spill /Leak Procedures:** CAREFULLY SWEEP UP AND DISCARD. CLEAN SPILL AREA WITH COLD WATER. IF PREPARED BUFFER SOLUTION IS SPILLED NEUTRALIZE AND MOP AREA.

**Small Spills:** WIPE AND CLEAN AREA

**Containment:** For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

**Cleanup Technique:** SCOOP UP SPILLED MATERIAL INTO A LARGE BEAKER AND DISSOLVE WITH WATER. ADJUST TO A pH BETWEEN 6 AND 9 WITH AN ALKALI, SUCH AS SODA ASH OR SODIUM BICARBONATE. FLUSH REACTED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER. DECONTAMINATE THE AREA OF THE SPILL WITH A SOAP SOLUTION.

**DISPOSE OF ALL WASTES IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATION.**

**Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

### Section 7 - Handling and Storage

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.

**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*

**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.

**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.

**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.

**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.

**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

### Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:**

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:**

### HYDRION BUFFER pH - 4.00

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.  
*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

### Section 9 - Physical and Chemical Properties

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Potassium Biphthalate 204.2 grams</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 1</p> <p><b>pH:</b> 4.00@ 25 C</p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Freezing/Melting Point:</b> NDA</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
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### Section 10 - Stability and Reactivity

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH CHLORINE, HYPOCHLORUS ACID, HYPOCHLORITES, CYANIDES OR SULFIDES.

### Section 11- Toxicological Information

<p><b>Eye Effects:</b> MAY CAUSE EYE MILD IRRITATION</p> <p><b>Skin Effects:</b> MILD IRRITANT TO THE SKIN AND MUCOUS MEMBRANES</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 3200 mg/kg- POTASSIUM BITHALATE</p> <p><b>Carcinogenicity:</b> NOT REPORTED</p> <p><b>Mutagenicity:</b> NOT REPORTED</p> <p><b>Teratogenicity:</b> NOT REPORTED</p>
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### Section 12 - Ecological Information

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

### Section 13 - Disposal Considerations

**Special instructions (Disposal):** DILUTE MATERIAL WITH EXCESS WATER MAKING A WEAKER THAN 5% SOLUTION. ADJUST TO A pH BETWEEN 6 AND 9 WITH AN ALKALI, SUCH AS SODA ASH OR SODIUM

**HYDRION BUFFER pH - 4.00**

BIC ARBONATE. OPEN COLD WATER TAP COMPLETELY , SLOWLY POUR THE REACTED MATERIAL TO THE DRAIN. ALLOW COLD WATER TO RUN FOR 5 MINUTES TO COMPLETELY FLUSH THE SYSTEM.

**Notice ( Disposal ) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATATION

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT CURRENTLY REGULATED**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2003**

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR IMFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE.THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

## HYDRION BUFFER pH-5.00

### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 5.00  
**Chemical Formula:** POTASSIUM BIPHATHALATE AND SODIUM PHOSPHATE DIBASIC  
**CAS Number:** 877-24-7 AND 7558-79-4  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
POTASSIUM BIPHATHALATE	877-24-7	75.0-85.0
SODIUM PHOSPHATE DIBASIC	7558-79-4	15.0-25.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
POTASSIUM BIPHATHALATE TOXICITY(oral-rat) LD 50 3200 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
SODIUM PHOSPHATE DIBASIC TOXICITY(oral-rat) LD 50 17 g/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
..							

### Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

**HMIS**  
**H** # 0  
**F** # 0  
**R** # 0  
**PPE** †

#### Potential Health Effects

**Acute Effects**

**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

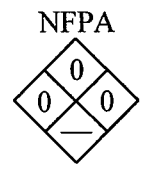
### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

HYDRION BUFFER pH - 5.00

Section 5 - Fire-Fighting Measures

**Flash Point:** NON FLAMMABLE  
**LEL:** N/A  
**UEL:** N/A  
**Flammability Classification:**NON FLAMMABLE  
**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA  
**Hazardous Combustion Products:** MAY RELEASE FUMES OF PHOSPHORUS OXIDE IF INVOLVED IN A FIRE.  
**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.  
**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Section 6 - Accidental Release Measures

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.  
**Spill /Leak Procedures:** CAREFULLY SWEEP UP AND DISCARD. CLEAN SPILL AREA WITH COLD WATER. IF PREPARED BUFFER SOLUTION IS SPILLED NEUTRALIZE AND MOP AREA.  
**Small Spills:** WIPE AND CLEAN AREA  
**Containment:** For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.  
**Cleanup Technique:** SCOOP UP SPILLED MATERIAL INTO A LARGE BEAKER AND DISSOLVE WITH WATER. ADJUST TO A pH BETWEEN 6 AND 9 WITH AN ALKALI, SUCH AS SODA ASH OR SODIUM BICARBONATE. FLUSH REACTED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER. DECONTAMINATE THE AREA OF THE SPILL WITH A SOAP SOLUTION.  
**DISPOSE OF ALL WASTES IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATION.**  
**Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.  
**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*  
**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.  
**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.  
**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.  
**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.  
**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:**  
**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.  
**Administrative Controls:**



**HYDRION BUFFER pH 5.00**

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.  
*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Physical and Chemical Properties**

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Potassium Biphthalate 204.02 Grams</p> <p>Sodium Phosphate Dibasic 141.96</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 1</p> <p><b>pH:</b> 5.00@ 25 C</p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Freezing/Melting Point:</b> NDA</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
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**Section 10 - Stability and Reactivity**

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH CHLORINE HYPOCHLORUS ACID , HYPOCHLORITES CYANIDES OR SULFIDES.

**Section 11- Toxicological Information**

<p><b>Eye Effects:</b> MAY CAUSE EYE MILD IRRITATION</p> <p><b>Skin Effects:</b> MILD IRRITANT TO THE SKIN AND MUCOUS MEMBRANES</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 3200 mg/kg -POTASSIUM BIPHTHALATE</p> <p>17 g/kg- SODIUM PHOSPHATE DIBASIC</p> <p><b>Carcinogenicity:</b> NOT REPORTED</p> <p><b>Mutagenicity:</b> NOT REPORTED</p> <p><b>Teratogenicity:</b> NOT REPORTED</p>
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**Section 12 - Ecological Information**

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

**Section 13 - Disposal Considerations**

**Special instructions (Disposal):** DILUTE MATERIAL WITH EXCESS WATER MAKING A WEAKER THAN 5% SOLUTION. ADJUST TO A pH BETWEEN 6 AND 9 WITH AN ALKALI, SUCH AS SODA ASH OR SODIUM

**HYDRION BUFFER pH - 5.00**

BIC ARBONATE. OPEN COLD WATER TAP COMPLETELY , SLOWLY POUR THE REACTED MATERIAL TO THE DRAIN. ALLOW COLD WATER TO RUN FOR 5 MINUTES TO COMPLETELY FLUSH THE SYSTEM.

**Notice ( Disposal ) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATATION

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT CURENYLY REGULATED**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2003**

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR IMFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE.THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

### HYDRION BUFFER pH-6.00

#### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 6.00  
**Chemical Formula:** POTASSIUM PHOSPHATE MONOBASIC AND SODIUM PHOSPHATE DIBASIC  
**CAS Number:** 7778-77-0 AND 7558-79-4  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

#### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
POTASSIUM PHOSPHATE MONOBASIC	7778-77-0	75.0-85.0
SODIUM PHOSPHATE DIBASIC	7558-79-4	15.0-25.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
POTASSIUM PHOSPHATE MONOBASIC TOXICITY(oral-rat) LD 50 7100 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
SODIUM PHOSPHATE DIBASIC TOXICITY(oral-rat) LD 50 17 g/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.

#### Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

**HMIS**  
**H** #0  
**F** #0  
**R** #0  
**PPE** †

#### Potential Health Effects

**Acute Effects**  
**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

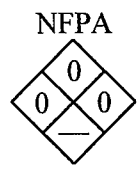
#### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**HYDRION BUFFER pH - 6.00**

**Section 5 - Fire-Fighting Measures**

**Flash Point:** NON FLAMMABLE  
**LEL:** N/A  
**UEL:** N/A  
**Flammability Classification:**NON FLAMMABLE  
**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA  
**Hazardous Combustion Products:** MAY RELEASE FUMES OF PHOSPHORUS OXIDE IF INVOLVED IN A FIRE.  
**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.  
**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



**Section 6 - Accidental Release Measures**

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.

**Clean-up Technique** ABSORB SPILLED LIQUID WITH NON-REACTIVE SORBENT MATERIAL. SWEEP UP MATERIAL. PLACE MATERIAL IN A PLASTIC BAG. MARK BAG 'NON-HAZARDOUS TRASH', AND DISPOSE OF AS NORMAL REFUSE. DECONTAMINATE THE AREA OF THE SPILL WITH A SOAP SOLUTION

**Evacuation Procedure :** EVACUATE AS NEEDED TO PERFORM SPILL CLEAN-UP. IF CONDITIONS WARRANT, INCREASE THE SIZE OF EVACUATION.

**Special Instructions (for accidental release) :** NOT APPLICABLE.  
**304 EHS RQ (40 CFR 355) :** NOT APPLICABLE.  
**D.O.T. Emergency Response guide Number :** NOT ALLOCATED.

**Section 7 - Handling and Storage**

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.

**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*

**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.

**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.

**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.

**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.

**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

**Section 8 - Exposure Controls / Personal Protection**

**Engineering Controls:**  
**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:**

**HYDRION BUFFER pH 6.00**

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.  
*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Physical and Chemical Properties**

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Potassium Phosphate Monobasic 136.09 Grams Sodium Phosphate Dibasic 141.96</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 1</p> <p><b>pH:</b> 6.00@ 25 C</p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Freezing/Melting Point:</b> NDA</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
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**Section 10 - Stability and Reactivity**

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH CHLORINE HYPOCHLORUS ACID, HYPOCHLORITES CYANIDES OR SULFIDES.

**Section 11- Toxicological Information**

<p><b>Eye Effects:</b> NOT REPORTED</p> <p><b>Skin Effects:</b> NOT REPORTED</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 7100 mg/kg -POTASSIUM PHOSPHATE MONOBASIC 17 g/kg- SODIUM PHOSPHATE DIBASIC</p> <p><b>Carcinogenicity:</b> NOT REPORTED</p> <p><b>Mutagenicity:</b> NOT REPORTED</p> <p><b>Teratogenicity:</b> NOT REPORTED</p>
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**Section 12 - Ecological Information**

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

**Section 13 - Disposal Considerations**

EPA Waste ID Number : NONE

**HYDRION BUFFER pH - 6.00**

**Special Instructions (Disposal) :** OPEN COLD WATER TAP COMPLETELY , SLOWLY POUR THE MATERIAL TO THE DRAIN.FLUSH SYSTEM WITH PLENTY OF WATER.

**Empty Containers :** RINSE THREE TIMES WITH AN APPROPRIATE SOLVENT.DISPOSE OF EMPTY CONTAINER AS NORMAL TRASH.

**Notice ( Disposal) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS.PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATATION.

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT REGULATED AT THIS TIME**

**Section 15 - Regulatory Information**

**EPA Regulations:**  
 RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)  
 RCRA Hazardous Waste Classification (40 CFR 261): Not classified  
 SARA Toxic Chemical (40 CFR 372.65): Not listed  
 SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**  
 Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2003**

**Disclaimer:**  
**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR IMFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE.THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

### HYDRION BUFFER pH-7.00

#### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 7.00  
**Chemical Formula:** POTASSIUM PHOSPHATE MONOBASIC AND SODIUM PHOSPHATE DIBASIC  
**CAS Number:** 7778-77-0 AND 7558-79-4  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

#### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
POTASSIUM PHOSPHATE MONOBASIC	7778-77-0	30.0-40.0
SODIUM PHOSPHATE DIBASIC	7558-79-4	60.0-70.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
POTASSIUM PHOSPHATE MONOBASIC TOXICITY(oral-rat) LD 50 7100 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
SODIUM PHOSPHATE DIBASIC TOXICITY(oral-rat) LD 50 17 g/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.

#### Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

**HMIS**  
**H** #0  
**F** #0  
**R** #0  
**PPE** †

#### Potential Health Effects

**Acute Effects**

**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

#### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

## HYDRION BUFFER pH - 7.00

## Section 5 - Fire-Fighting Measures

**Flash Point:** NON FLAMMABLE

**LEL:** N/A

**UEL:** N/A

**Flammability Classification:**NON FLAMMABLE

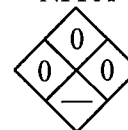
**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA

**Hazardous Combustion Products:** MAY RELEASE FUMES OF PHOSPHORUS OXIDE IF INVOLVED IN A FIRE.

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

NFPA



## Section 6 - Accidental Release Measures

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.

**Clean-up Technique** ABSORB SPILLED LIQUID WITH NON-REACTIVE SORBENT MATERIAL. SWEEP UP MATERIAL. PLACE MATERIAL IN A PLASTIC BAG. MARK BAG 'NON-HAZARDOUS TRASH', AND DISPOSE OF AS NORMAL REFUSE. DECONTAMINATE THE AREA OF THE SPILL WITH A SOAP SOLUTION

**Evacuation Procedure :** EVACUATE AS NEEDED TO PERFORM SPILL CLEAN-UP. IF CONDITIONS WARRANT, INCREASE THE SIZE OF EVACUATION.

**Special Instructions (for accidental release) :** NOT APPLICABLE.

**304 EHS RQ (40 CFR 355) :** NOT APPLICABLE.

**D.O.T. Emergency Response guide Number :** NOT ALLOCATED.

## Section 7 - Handling and Storage

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.

**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*

**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.

**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.

**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.

**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.

**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

## Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:**

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:**

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.



**HYDRION BUFFER pH -7.00**

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Physical and Chemical Properties**

**Appearance and Odor:** White to off White granular or crystals odorless powder.

**Vapor Pressure:** NDA

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

**Formula Weight:** Potassium Phosphate Monobasic

136.09 Grams

Sodium Phosphate Dibasic

141.96

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** ~ 1

**pH:** 7.00@ 25 C

**Water Solubility:** Miscible

**Other Solubilities:** Not determined

**Boiling Point:** 100 C

**Freezing/Melting Point:** NDA

**Viscosity:** NDA

**Refractive Index:** NDA

**Surface Tension:** NDA

**% Volatile:** NOT VOLATILE

**Evaporation Rate:** NDA

**Section 10 - Stability and Reactivity**

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH CHLORINE HYPOCHLORUS ACID, HYPOCHLORITES, CYANIDES OR SULFIDES.

**Section 11- Toxicological Information**

**Toxicity Data:\***

**Eye Effects:** NOT REPORTED

**Skin Effects:** NOT REPORTED

**Acute Inhalation Effects:**

Human, inhalation, NOT REPORTED

**Acute Oral Effects:**

Rat, oral, LD<sub>50</sub>: 7100 mg/kg -POTASSIUM PHOSPHATE MONOBASIC

17 g/kg- SODIUM PHOSPHATE DIBASIC

**Carcinogenicity:** NOT REPORTED

**Mutagenicity:** NOT REPORTED

**Teratogenicity:** NOT REPORTED

**Section 12 - Ecological Information**

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

**Section 13 - Disposal Considerations**

**EPA Waste ID Number :** NONE

**Special Instructions (Disposal) :** OPEN COLD WATER TAP COMPLETELY, SLOWLY POUR THE MATERIAL TO THE DRAIN. FLUSH SYSTEM WITH PLENTY OF WATER.

**Empty Containers :** RINSE THREE TIMES WITH AN APPROPRIATE SOLVENT. DISPOSE OF EMPTY CONTAINER AS NORMAL TRASH.

**Notice ( Disposal) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATION.

**HYDRION BUFFER pH - 7.00**

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT REGULATED AT THIS TIME**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2000**

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE. THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2000**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

### HYDRION BUFFER pH-8.00

#### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 8.00  
**Chemical Formula:** POTASSIUM PHOSPHATE MONOBASIC AND SODIUM PHOSPHATE DIBASIC  
**CAS Number:** 7778-77-0 AND 7558-79-4  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

#### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
POTASSIUM PHOSPHATE MONOBASIC	7778-77-0	10.0-20.0
SODIUM PHOSPHATE DIBASIC	7558-79-4	80.0-90.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
POTASSIUM PHOSPHATE MONOBASIC TOXICITY(oral-rat) LD 50 7100 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
SODIUM PHOSPHATE DIBASIC TOXICITY(oral-rat) LD 50 17 g/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.

#### Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

<b>HMIS</b>
H # 0
F # 0
R # 0
PPE†

#### Potential Health Effects

**Acute Effects**

**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.  
**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.  
**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.  
**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.  
**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.  
**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

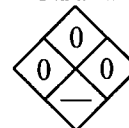
#### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.  
**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.  
**Skin Contact:** WASH WITH SOAP AND WATER.  
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

## HYDRION BUFFER pH - 8.00

**Section 5 - Fire-Fighting Measures****Flash Point:** NON FLAMMABLE**LEL:** N/A**UEL:** N/A**Flammability Classification:**NON FLAMMABLE**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA**Hazardous Combustion Products:** MAY RELEASE FUMES OF PHOSPHORUS OXIDE IF INVOLVED IN A FIRE.**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

NFPA

**Section 6 - Accidental Release Measures****Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.**Containment Technique:** STOP SPILLED MATERIAL FROM BEING RELEASED TO THE ENVIRONMENT.**Clean-up Technique :** SCOOP UP SPILLED MATERIAL INTO A LARGE BEAKER AND DISOLVE WITH WITH WATER. FLUSH THE SPILLED MATERIAL TO THE DRAIN WITH A LARGE EXCESS OF WATER. DECONTAMINATE THE AREA OF SPILL WITH A SOAP SOLUTION**Evacuation Procedure :** EVACUATE AS NEEDED TO PERFORM SPILL CLEAN-UP. IF CONDITIONS WARRANT, INCREASE THE SIZE OF EVACUATION.**Special Instructions (for accidental release) :** NOT APPLICABLE.**304 EHS RQ (40 CFR 355) :** NOT APPLICABLE.**D.O.T. Emergency Response guide Number :** NOT ALLOCATED.**Section 7 - Handling and Storage****Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.**Handling Precautions: \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*****VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.****Section 8 - Exposure Controls / Personal Protection****Engineering Controls:****Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.**Administrative Controls:**

**HYDRION BUFFER pH -8.00**

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.  
*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Physical and Chemical Properties**

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Potassium Phosphate Monobasic 136.09 Grams</p> <p style="padding-left: 40px;">Sodium Phosphate Dibasic 141.96</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 2.42</p> <p><b>pH: 8.00@ 25 C</b></p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Melting Point:</b> 400 C</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
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**Section 10 - Stability and Reactivity**

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH CHLORINE HYPOCHLORUS ACID , HYPOCHLORITES ,CYANIDES OR SULFIDES.

**Section 11- Toxicological Information**

<p><b>Eye Effects:</b> MAY CAUSE EYE MILD IRRITATION</p> <p><b>Skin Effects:</b> MILD IRRITANT TO THE SKIN AND MUCOUS MEMBRANES</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 7100 mg/kg -POTASSIUM PHOSPHATE MONOBASIC 17 g/kg- SODIUM PHOSPHATE DIBASIC</p> <p><b>Carcinogenicity:</b> NOT REPORTED</p> <p><b>Mutagenicity:</b> NOT REPORTED</p> <p><b>Teratogenicity:</b> NOT REPORTED</p>
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**Section 12 - Ecological Information**

**NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT**

**Section 13 - Disposal Considerations**

**EPA Waste ID Number :** NONE

**Special Instructions (Disposal) :** DILUTE MATERIAL WITH EXCESS WATER MAKING A WEAKER THAN 5% SOLUTION. OPEN COLD WATER COMPLETELY , SLOWLY POUR THE

**HYDRION BUFFER pH - 8.00**

MATERIAL TO THE DRAIN. FLUSH SYSTEM WITH PLENTY OF WATER.

**Empty Containers :** RINSE THREE TIMES WITH AN APPROPRIATE SOLVENT. DISPOSE OF EMPTY CONTAINER

AS NORMAL TRASH.

**Notice ( Disposal ) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATION.

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT CURRENTLY REGULATED**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By:** MAF 3-15-2003

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE. THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

## Material Safety Data Sheet

# MICRO ESSENTIAL LABORATORY, INC.

Date of Preparation: 3-15-2003

### HYDRION BUFFER pH-9.00

#### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRION BUFFER SALT pH 9.00  
**Chemical Formula:** SODIUM CARBONATE AND SODIUM BICARBONATE  
**CAS Number:** 497-19-8 AND 144-55-8  
**General Use:** PREPARATION OF BUFFER STANDARDS IN DISTILLED WATER  
**Manufacturer:** MICRO ESSENTIAL LABORATORY INC. P O BOX 10824, 4224 AVENUE H  
 BROOKLYN, NEW YORK 11210  
 PHONE 718-338-3618 FAX 718-692-4491 (8.00AM TO 4.00PM EASTERN STANDARD TIME)

#### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
SODIUM CARBONATE	497-19-8	20.0-30.0
SODIUM BICARBONATE	144-55-8	70.0-80.0

**Trace Impurities:**

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
SODIUM CARBONATE TOXICITY(oral-rat) LD 50 4090 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.
SODIUM BICARBONATE TOXICITY(oral-rat) LD 50 4220 mg/kg	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.	None Estab.

#### Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

<b>HMIS</b>
<b>H # 0</b>
<b>F # 0</b>
<b>R # 0</b>
<b>PPE†</b>

#### Potential Health Effects

**Acute Effects**

**Inhalation:** PROLONGED EXPOSURE MAY CAUSE IRRITATION OF THE NOSE, THROAT AND RESPIRATORY TRACT.

**Eye:** DUST MIGHT BE IRRITATING TO THE EYES.

**Skin:** PROLONGED CONTACT MAY CAUSE SKIN IRRITATION OR ALLERGIC REACTION.

**Ingestion:** CAN IRRITATE STOMACH AND CAUSE MOUTH BURNS.

**Carcinogenicity:** IARC, NTP, and OSHA DO NOT LIST THIS PRODUCT AS A CARCINOGEN.

**Chronic Effects:** PROLONGED EXPOSURE TO **BULK POWDER** MAY CAUSE IRRITATION TO THE EYES, SKIN AND RESPIRATORY SYSTEM.

#### Section 4 - First Aid Measures

**Inhalation:** REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT.

**Eye Contact:** FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES.

**Skin Contact:** WASH WITH SOAP AND WATER.

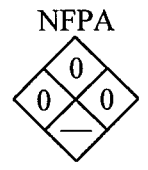
**Ingestion:** DRINK LOTS OF WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN.

*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**HYDRION BUFFER pH - 9.00**

**Section 5 - Fire-Fighting Measures**

**Flash Point:** NON FLAMMABLE  
**LEL:** N/A  
**UEL:** N/A  
**Flammability Classification:**NON FLAMMABLE  
**Extinguishing Media:** USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING AREA  
**Hazardous Combustion Products:** MAY RELEASE CARBON MONOXIDE IF INVOLVED IN A FIRE.  
**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.  
**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



**Section 6 - Accidental Release Measures**

**Spill Response Notice:** ONLY PERSONS PROPERLY QUALIFIED TO RESPOND TO AN EMERGENCY INVOLVING HAZARDOUS SUBSTANCES MAY RESPOND TO A SPILL ACCORDING TO FEDERAL REGULATIONS ( OSHA 29 CFR 1910.120(a)(v)) AND PER YOUR COMPANY'S EMERGENCY RESPONSE PLAN AND GUIDELINES/PROCEDURES. SEE SECTION 13, SPECIAL INSTRUCTIONS FOR DISPOSAL ASSISTANCE.  
**Clean-up Technique** ABSORB SPILLED LIQUID WITH NON-REACTIVE SORBENT MATERIAL. SWEEP UP MATERIAL. PLACE MATERIAL IN A PLASTIC BAG. MARK BAG 'NON-HAZARDOUS TRASH', AND DISPOSE OF AS NORMAL REFUSE. DECONTAMINATE THE AREA OF THE SPILL WITH A SOAP SOLUTION  
**Evacuation Procedure :** EVACUATE AS NEEDED TO PERFORM SPILL CLEAN-UP. IF CONDITIONS WARRANT, INCREASE THE SIZE OF EVACUATION.  
**Special Instructions (for accidental release) :** NOT APPLICABLE.  
**304 EHS RQ (40 CFR 355) :** NOT APPLICABLE.  
**D.O.T. Emergency Response guide Number :** NOT ALLOCATED.

**Section 7 - Handling and Storage**

**Storage Requirements:** STORE AT CONTROLLED ROOM TEMP. IN DRY LOCATION. AVOID HIGH TEMPERATURES AND HIGH HUMIDITIES. KEEP CONTAINER CLOSE WHEN NOT IN USE.  
**Handling Precautions:** \*\*\* PERTAINS ONLY TO BULK POWDER HANDLING\*\*\*  
**VENTILATION:** USE ADEQUATE GENERAL OR LOCAL VENTILATION TO KEEP FUME AND DUST LEVELS AS LOW AS POSSIBLE.  
**RESPIRATION PROTECTION:** USE NIOSH APPROVED DUST RESPIRATOR WHEN HANDLING BULK POWDER.  
**EYE PROTECTION :** CHEMICAL SPLASH GOGGLES WITH SIDE SHIELDS WHEN HANDLING BULK POWDER.  
**GLOVES:** NATURAL RUBBER, BUTYL NEOPRENE OR EQUIVALENT . WEAR FULL COVER CLOTHING WHEN HANDLING BULK POWDER.  
**DO NOT BREATH DUST. DO NOT GET INTO EYES. AVOID PROLONGED OR REPEATED SKIN CONTACT. WASH WITH COLD WATER AFTER CONTACT. DO NOT TAKE INTERNALLY.**

**Section 8 - Exposure Controls / Personal Protection**

**Engineering Controls:**  
**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.  
**Administrative Controls:**  
**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.  
*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.



**HYDRION BUFFER pH- 9.00**

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Physical and Chemical Properties**

<p><b>Appearance and Odor:</b> White to off White granular or crystals odorless powder.</p> <p><b>Vapor Pressure:</b> NDA</p> <p><b>Vapor Density (Air=1):</b> NDA</p> <p><b>Formula Weight:</b> Sodium Carbonate 105.99 Grams Sodium Bicarbonate 84.01</p> <p><b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> ~ 1</p> <p><b>pH:</b> 9. 00@ 25 C</p>	<p><b>Water Solubility:</b> Miscible</p> <p><b>Other Solubilities:</b> Not determined</p> <p><b>Boiling Point:</b> 100 C</p> <p><b>Freezing/Melting Point:</b> NDA</p> <p><b>Viscosity:</b> NDA</p> <p><b>Refractive Index:</b> NDA</p> <p><b>Surface Tension:</b> NDA</p> <p><b>% Volatile:</b> NOT VOLATILE</p> <p><b>Evaporation Rate:</b> NDA</p>
---	---

**Section 10 - Stability and Reactivity**

**Stability:** HYDRION BUFFER SALT IS STABLE at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** HAZARDOUS REACTION IN AQUEOUS SOLUTION MAY OCCUR WITH STRONG ACID, ALUMINIUM, FLOURINE, PHOSPHORUS PENTOXIDE AND AMMONIUM PHOSPHATE MONOBASIC.

**Section 11- Toxicological Information**

<p><b>Eye Effects:</b> MAY CAUSE EYE MILD IRRITATION</p> <p><b>Skin Effects:</b> MILD IRRITANT TO THE SKIN AND MUCOUS MEMBRANES</p>	<p><b>Toxicity Data:*</b></p> <p><b>Acute Inhalation Effects:</b> Human, inhalation, NOT REPORTED</p> <p><b>Acute Oral Effects:</b> Rat, oral, LD<sub>50</sub>: 4090mg/kg -SODIUM CARBONATE 4220mg/kg- SODIUM BICARBONATE</p> <p><b>Carcinogenicity:</b> NOT REPORTED</p> <p><b>Mutagenicity:</b> NOT REPORTED</p> <p><b>Teratogenicity:</b> NOT REPORTED</p>
---	---

**Section 12 - Ecological Information**

NO ECOLOGICAL DATA AVAILABLE FOR THIS PRODUCT

**Section 13 - Disposal Considerations**

**EPA Waste ID Number :** NONE

**Special Instructions (Disposal) :** OPEN COLD WATER TAP COMPLETELY , SLOWLY POUR THE MATERIAL TO THE DRAIN. FLUSH SYSTEM WITH PLENTY OF WATER.

**Empty Containers :** RINSE THREE TIMES WITH AN APPROPRIATE SOLVENT.DISPOSE OF EMPTY CONTAINER AS NORMAL TRASH.

**Notice ( Disposal) :** THESE DISPOSAL GUIDELINES ARE BASED ON FEDERAL REGULATATIONS AND MAY BE SUPERSEDED BY MORE STRINGENT STATE OR LOCAL REQUIREMENTS. PLEASE CONSULT YOUR LOCAL ENVIRONMENTAL REGULATORS FOR MORE INFORMATATION.

**HYDRION BUFFER pH - 9.00**

**Section 14 - Transport Information**

**DOT Transportation Data (49 CFR 172.101):**

**NOT CURRENTLY  
REGULATED**

**Section 15 - Regulatory Information**

**EPA Regulations:**

- RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
- RCRA Hazardous Waste Classification (40 CFR 261): Not classified
- SARA Toxic Chemical (40 CFR 372.65): Not listed
- SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

**OSHA Regulations:**

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

**Section 16 - Other Information**

**Prepared By: MAF 3-15-2003**

**Disclaimer:**

**THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL THAT IS NOT SUPPLIED BY MICRO ESSENTIAL LABORATORY AS A BUFFER SALT. THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES ONLY AND IS BASED ON TECHNICAL DATA THAT MICRO ESSENTIAL BELIEVES TO BE RELIABLE AND ACCURATE. THE INFORMATION AND DATA ARE INTENDED TO BE FOLLOWED ONLY BY PERSONS WITH TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. WE RESERVE RIGHT TO REVISE THIS SAFETY SHEET FROM TIME TO TIME.**

**MICRO ESSENTIAL LABORATORY INC. @2003**

**Material Safety Data Sheet**

Printing date 09/05/2006

Reviewed on 08/07/2006

**1 Identification of substance:**

- **Product details:**
- **Trade name:** DC Protein Assay Reagent B
- **Catalog or product number:** 5000114, 5000114EDU, 9702086, 9702089
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.  
510-741-1000

**2 Composition/Information on components:**

- **Chemical characterization:**
- **CAS No. Description:**  
7732-18-5 water
- **Identification number(s):**
- **EINECS Number:** 231-791-2
- **Chemical characterization**

· **Listing of dangerous and non-hazardous components:**

CAS: 7782-91-4	molybdic acid	T; R 23/24/25	0.1-1.0%
EINECS: 231-970-5			
RTECS: QA 4725000			

**3 Hazards identification**

- **Information pertaining to particular dangers for man and environment not applicable**

**4 First aid measures**

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

USA

(Contd. on page 2)

**Material Safety Data Sheet**

Printing date 09/05/2006

Reviewed on 08/07/2006

**Trade name: DC Protein Assay Reagent B**

(Contd. of page 1)

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information for safe handling:**  
No special measures required.  
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

· **Components with limit values that require monitoring at the workplace:**

**7664-38-2 phosphoric acid**

PEL ()	1 mg/m <sup>3</sup>
REL ()	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup>
TLV ()	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup>

**7647-01-0 hydrochloric acid**

PEL ()	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
REL ()	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
TLV ()	Short-term value: C 2.98 mg/m <sup>3</sup> , C 2 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:**
- **Material of gloves:** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling.

USA

(Contd. on page 3)

## Material Safety Data Sheet

Printing date 09/05/2006

Reviewed on 08/07/2006

Trade name: DC Protein Assay Reagent B

(Contd. of page 2)

**9 Physical and chemical properties:**· **General Information**

**Form:** liquid  
**Color:** Colorless  
**Odor:** Odorless

· **Change in condition**

**Melting point/Melting range:** 0°C  
**Boiling point/Boiling range:** 100°C

· **Flash point:** Not applicable

· **Danger of explosion:** Product does not present an explosion hazard.

· **Vapor pressure at 20°C:** 23 hPa

· **Density at 20°C:** 1 g/cm<sup>3</sup>

· **Solubility in / Miscibility with**

**Water:** Fully miscible  
 Not miscible or difficult to mix

· **pH-value at 20°C:** 2.0

· **Viscosity:**

**dynamic at 20°C:** 1 mPas

· **Organic solvents:** 0.0 %

· **Water:** 98.4 %

· **Solids content:** 1.4 %

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

**11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
 When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.  
 The substance is not subject to classification according to the latest version of the EU lists.

**12 Ecological information:**

- **General notes:** Generally not hazardous for water.

USA

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 09/05/2006

Reviewed on 08/07/2006

**Trade name: DC Protein Assay Reagent B**

(Contd. of page 3)

**13 Disposal considerations**

- **Product:**
- **Recommendation** Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

**15 Regulations**

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

- **Section 313 (40CFR372.65):**

Substance is not listed.

- **TSCA (Toxic Substances Control Act):**

7732-18-5	water
10377-48-7	Lithium sulfate
7664-38-2	phosphoric acid
7782-91-4	molybdc acid
7647-01-0	hydrochloric acid

- **Cancerogenity categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

- **IARC (International Agency for Research on Cancer)**

7647-01-0	hydrochloric acid	3
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- **NTP (National Toxicology Program)**

Substance is not listed.

- **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

- **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

(Contd. on page 5)

## Material Safety Data Sheet

Printing date 09/05/2006

Reviewed on 08/07/2006

**Trade name: DC Protein Assay Reagent B**

(Contd. of page 4)

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Markings according to EU guidelines:**

The substance is not subject to classification according to EU lists and other sources of literature known to us.

Observe the general safety regulations when handling chemicals

The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

· **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

· **National regulations**

· **Water hazard class:** Generally not hazardous for water.

### 16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 724-7000

· \* **Data compared to the previous version altered.**

USA





**Material Safety Data Sheet**

Printing date 09/05/2006

Reviewed on 08/07/2006

**1 Identification of substance:**

- **Product details:**
- **Trade name:** DC Protein Assay Reagent B
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- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.  
510-741-1000

**2 Composition/Information on components:**

- **Chemical characterization:**
- **CAS No. Description:**  
7732-18-5 water
- **Identification number(s):**
- **EINECS Number:** 231-791-2
- **Chemical characterization**

· **Listing of dangerous and non-hazardous components:**

CAS: 7782-91-4	molybdic acid	T; R 23/24/25	0.1-1.0%
EINECS: 231-970-5			
RTECS: QA 4725000			

**3 Hazards identification**

- **Information pertaining to particular dangers for man and environment not applicable**

**4 First aid measures**

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

USA

(Contd. on page 2)

**Material Safety Data Sheet**

Printing date 09/05/2006

Reviewed on 08/07/2006

**Trade name: DC Protein Assay Reagent B**

(Contd. of page 1)

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information for safe handling:**  
No special measures required.  
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

· **Components with limit values that require monitoring at the workplace:**

**7664-38-2 phosphoric acid**

PEL ()	1 mg/m <sup>3</sup>
REL ()	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup>
TLV ()	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup>

**7647-01-0 hydrochloric acid**

PEL ()	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
REL ()	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
TLV ()	Short-term value: C 2.98 mg/m <sup>3</sup> , C 2 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:**
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling.

USA

(Contd. on page 3)

## Material Safety Data Sheet

Printing date 09/05/2006

Reviewed on 08/07/2006

Trade name: DC Protein Assay Reagent B

(Contd. of page 2)

**9 Physical and chemical properties:**· **General Information**

<b>Form:</b>	liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Odorless

· **Change in condition**

<b>Melting point/Melting range:</b>	0°C
<b>Boiling point/Boiling range:</b>	100°C

· **Flash point:** Not applicable· **Danger of explosion:** Product does not present an explosion hazard.· **Vapor pressure at 20°C:** 23 hPa· **Density at 20°C:** 1 g/cm<sup>3</sup>· **Solubility in / Miscibility with**

<b>Water:</b>	Fully miscible Not miscible or difficult to mix
---------------	--

· **pH-value at 20°C:** 2.0· **Viscosity:**· **dynamic at 20°C:** 1 mPas· **Organic solvents:** 0.0 %· **Water:** 98.4 %· **Solids content:** 1.4 %**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

**11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.  
The substance is not subject to classification according to the latest version of the EU lists.

**12 Ecological information:**

- **General notes:** Generally not hazardous for water.

USA

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 09/05/2006

Reviewed on 08/07/2006

**Trade name: DC Protein Assay Reagent B**

(Contd. of page 3)

**13 Disposal considerations**

- **Product:**
- **Recommendation** Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

**15 Regulations**

- **SARA (Superfund Amendants and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

- **Section 313 (40CFR372.65):**

Substance is not listed.

- **TSCA (Toxic Substances Control Act):**

7732-18-5	water
10377-48-7	Lithium sulfate
7664-38-2	phosphoric acid
7782-91-4	molybdc acid
7647-01-0	hydrochloric acid

- **Cancerogenity categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

- **IARC (International Agency for Research on Cancer)**

7647-01-0	hydrochloric acid	3
-----------	-------------------	---

- **NTP (National Toxicology Program)**

Substance is not listed.

- **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

- **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

(Contd. on page 5)

## Material Safety Data Sheet

Printing date 09/05/2006

Reviewed on 08/07/2006

**Trade name: DC Protein Assay Reagent B**

(Contd. of page 4)

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Markings according to EU guidelines:**

The substance is not subject to classification according to EU lists and other sources of literature known to us.

Observe the general safety regulations when handling chemicals

The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

· **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

· **National regulations**

· **Water hazard class:** Generally not hazardous for water.

### 16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547:  
1(510) 724-7000

· **\* Data compared to the previous version altered.**

USA



AMEREX CORPORATION  
7595 Gadsden Highway  
P. O. Box 81  
Trussville, Alabama 35173-0081  
**MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards<sup>1</sup>*

## **PART I** *What is the material and what do I need to know in an emergency?*

### 1. PRODUCT IDENTIFICATION

**TRADE NAME (AS LABELED):**

**SYNONYMS:**

**MANUFACTURER'S NAME:**

**ADDRESS:**

**EMERGENCY PHONE:**

**BUSINESS PHONE:**

**REVIEWED:**

**ABC DRY CHEMICAL**

**Multi-Purpose Dry Chemical**

**AMEREX CORPORATION**

P.O. BOX 81

Trussville, AL 35173-0081

1-800-424-9300 (**CHEMTREC**)

(205) 655-3271

April 1, 1999

### 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	PEL mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	IDLH mg/m <sup>3</sup>	
Mono Ammonium Phosphate	7722-76-1	95	ACGIH TLV for Particulates, Not Otherwise Classified = 10; OSHA PEL for Particulates Not Otherwise regulated, Total Dust = 15, Respirable Fraction 5.					
Ammonium Sulfate	7783-20-2							
Mica	12001-26-2	< 3	3 (Respirable Fraction)	NE	3 (Respirable Fraction)	NE	NE	NE
Attaclay	8031-18-3	< 3	NE	NE	NE	NE	NE	NE
Silicone Oil	63148-57-2	< 1	NE	NE	NE	NE	NE	NE
Calcium Carbonate	471-34-1	< 1	ACGIH TLV for Particulates, Not Otherwise Classified = 10; OSHA PEL for Particulates Not Otherwise regulated, Total Dust = 15, Respirable Fraction 5.					
Silica (Precipitated)	112926-00-8	< 1	2	NE	6	NE	NE	NE
Yellow Pigment	5468-75-7	< 1	NE	NE	NE	NE	NE	NE

NE = Not Established

C = Ceiling Level See Section 16 for Definitions of Terms Used

<sup>1</sup> NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

### ABC DRY CHEMICAL MSDS PAGE 1 OF 8

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** This mixture of dry chemicals poses little hazard. Mechanical

irritation of the eyes is possible during the use and maintenance of the extinguishing units.  
Chronic inhalation of any particulate may damage the lungs.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** Over-exposure to this product may cause mild skin irritation, moderate eye irritation, and possible gastric distress. The product is not known to cause chronic illness.



**INHALATION:** Inhalation of this product should be avoided, but if it occurs, may cause mild irritation of the nose, throat, and other tissues of the respiratory system.

**CONTACT WITH SKIN or EYES:** Contact of dust from this product with the eyes may cause moderate irritation, reddening of the affected eye, and discomfort.

**SKIN ABSORPTION:** No component of this product is known to absorb through the skin.

**INGESTION:** Ingestion of this product may cause mild gastric distress.

**INJECTION:** While injection of this product is unlikely, it may occur as a result of a puncture or cut with a sharp object contaminated with the extinguishing agent. Mild symptoms, similar to those of skin irritation may occur.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
<b>HEALTH</b>	(BLUE)	1	
<b>FLAMMABILITY</b>	(RED)	0	
<b>REACTIVITY</b>	(YELLOW)	0	
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

**HEALTH EFFECTS OR RISKS FROM EXPOSURE:** An Explanation in **Lay Terms**. This product poses low, acute health risks.

**ACUTE:** This extinguishing material presents only a slight risk of causing acute health effects. If such effects occur, they will be in the form of mild irritation of the skin, nose, or throat and moderate irritation of the eyes. If ingested, this product may cause an upset stomach.

**CHRONIC:** This product is not known to cause any chronic illnesses or diseases.

## **PART II** *What should I do if a hazardous situation occurs?*

### **4. FIRST-AID MEASURES**

**SKIN EXPOSURE:** If spilled on skin, immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. If reddening or irritation occurs, victim and rescuers must seek immediate medical attention.

**EYE EXPOSURE:** If chemical is splashed in eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes.

**INHALATION:** If chemical is inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. If reddening or irritation occurs, victim and rescuers must seek immediate medical attention.



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## ABC DRY CHEMICAL MSDS

### PAGE 2 OF 8

#### 4. FIRST-AID MEASURES (Continued)

INGESTION: If chemical is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow.

If exposure causes obvious distress, victim(s) and rescuers must be taken for medical attention. Take copy of label and MSDS to physician or health professional with victim.

---

#### 5. FIRE-FIGHTING MEASURES

FLASH POINT, Degree C (method): Not applicable.

NFPA RANKING - HEALTH=1, FLAMMABILITY=0, REACTIVITY=0, OTHER=0

AUTOIGNITION TEMPERATURE, Degree C: Not applicable.

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): Not applicable.  
Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS: None. This product is a fire extinguishing agent.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material may decompose and produce irritating fumes and toxic gases including sulfur oxides, carbon dioxide and carbon monoxide.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

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#### 6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. If it is determined that exposure guidelines for nuisance particulates -- 10 mg/m<sup>3</sup> (total particulates) or 5 mg/m<sup>3</sup> (respirable particulates) -- is exceeded, use **Level C: triple-gloves (rubber gloves and nitrile gloves, over latex gloves), chemically resistant suit and boots, hard-hat, and air purifying respirator with a HEPA filter**. Sweep-up the spilled solid and place all spill residue in a double plastic bag and seal. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13).

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### **PART III** *How can I prevent hazardous situations from occurring?*

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#### 7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: Avoid getting chemicals ON YOU or IN YOU.

Wash hands after handling chemicals. Do not eat or drink while handling chemicals or recharging fire extinguishers.

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Avoid breathing sprays or mists generated by this product.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment using soapy water before maintenance begins. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

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## ABC DRY CHEMICAL MSDS PAGE 3 OF 8

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### 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Use a mechanical fan or vent area to outside.

**RESPIRATORY PROTECTION:** Respiratory protection is not expected to be needed. Maintain airborne contaminant concentrations below guidelines for nuisance particulates: 10 mg/m<sup>3</sup> (total particulates) or 5 mg/m<sup>3</sup> (respirable particulates). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. Use supplied air respiratory protection if oxygen levels are below 19.5%.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION:** Wear rubber gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 of this MSDS.

**BODY PROTECTION:** Use body protection appropriate for task.

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### 9. PHYSICAL and CHEMICAL PROPERTIES

**VAPOR DENSITY:** Not applicable.

**SPECIFIC GRAVITY:** Approximately 0.85

**SOLUBILITY IN WATER:** Not soluble. Water-repellent coating.

**VAPOR PRESSURE, mm Hg @ 20 Degrees C:** Not applicable.

**APPEARANCE AND COLOR:** This material is a finely divided, yellowish powder.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** This product does not have any specific warning properties.

**EVAPORATION RATE (n-BuAc=1):** Not applicable.

**MELTING POINT or RANGE:** Not applicable.

**BOILING POINT:** Not applicable.

**pH (10% solution):** Approximately 4-5

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### 10. STABILITY and REACTIVITY

**STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** Sulfur oxides, carbon monoxide and carbon dioxide.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong alkalis, magnesium, swimming pool sanitizers (inorganic perchlorates, sodium dichloroisocyanurate dihydrate, trichloroisocyanuric acid, calcium hypochlorite, and other strong oxidizers).

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Incompatible materials.

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## PART IV *Is there any other useful information about this material?*

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## 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following data is available for components of this product greater than 1 percent by weight in concentration.

### AMMONIUM SULFATE

**TDLo (oral, man) = 1500 mg/kg**  
**LD50 (oral, rat) = 3000 mg/kg**  
**LD50 (interperitoneal, rat) = 610 mg/kg**

### MONO-AMMONIUM PHOSPHATE

**No toxicology information listed.**

SUSPECTED CANCER AGENT: This product's ingredients are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA. A variety of silica forms (i.e. crystalline, fumed) are reported in IARC as a Group 3 Compound (Human Inadequate Evidence; Animal Inadequate Evidence).

IRRITANCY OF PRODUCT: This product may cause mild skin and respiratory irritation and moderate eye irritancy.

SENSITIZATION TO THE PRODUCT: This product is not known to cause sensitization.

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## ABC DRY CHEMICAL MSDS PAGE 4 OF 8

### 11. TOXICOLOGICAL INFORMATION (Continued)

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not known to cause mutagenic effects.

Teratogenicity: This product is not known to cause teratogenic effects.

Reproductive Toxicity: This product is not known to cause reproductive toxicity effects.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Prolonged contact with this product may cause pre-existing dermatitis to become aggravated. Persons sensitive to pulmonary irritation upon exposure to high concentrations of dust should use appropriate engineering controls or respiratory protection when recharging fire extinguishers.

RECOMMENDATIONS TO PHYSICIANS: Treat patient symptoms. This product should not cause any notable clinical symptoms.

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## 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: No adverse environmental consequences are expected.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: None currently known.

EFFECT OF CHEMICAL ON AQUATIC LIFE: Not expected to harm aquatic life.

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### 13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This chemical, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Residue from fires extinguished with this material may be hazardous.  
EPA WASTE NUMBER: Not applicable.

### 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

<u>PROPER SHIPPING NAME</u> :	Not applicable.
<u>HAZARD CLASS NUMBER and DESCRIPTION</u> :	Not applicable.
<u>UN IDENTIFICATION NUMBER</u> :	Not applicable.
<u>PACKING GROUP</u> :	Not applicable.
<u>DOT LABEL(S) REQUIRED</u> :	Not applicable.
<u>EMERGENCY RESPONSE GUIDE NUMBER</u> :	Not applicable.

MARINE POLLUTANT: Not applicable.

THIS MATERIAL IS HAZARDOUS AS DEFINED BY TRANSPORT CANADA "TRANSPORTATION OF DANGEROUS GOODS" REGULATIONS.

## ABC DRY CHEMICAL MSDS PAGE 5 OF 8

### 15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: No component of this product is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

SARA Threshold Planning Quantity: Not applicable.

TSCA INVENTORY STATUS: All components are listed on the TSCA Inventory.

CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

OTHER FEDERAL REGULATIONS: Not applicable.

STATE REGULATORY INFORMATION: Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None.  
 California - Permissible Exposure Limits for Chemical Contaminants: None.  
 Florida - Substance List: Mica Dust, Ammonium Sulfate.  
 Illinois - Toxic Substance List: None.

Massachusetts - Substance List: Mica Dust, Ammonium Sulfate,  
 Minnesota - List of Hazardous Substances: None.  
 Missouri - Employer Information/Toxic Substance List: None.  
 New Jersey - Right to Know Hazardous Substance List: None.

Pennsylvania - Hazardous Substance List: None.  
 Rhode Island - Hazardous Substance List: Mica Dust, Ammonium Sulfate.  
 Texas - Hazardous Substance List: No.  
 West Virginia - Hazardous Substance List: None.

Kansas - Section 302/313 List: None.

North Dakota - List of Hazardous  
Chemicals, Reportable Quantities: None.Wisconsin - Toxic and Hazardous  
Substances: None.CALIFORNIA PROPOSITION 65: No component is listed on the California Proposition 65 lists.LABELING (Precautionary Statements): CAUTION! May cause skin or eye irritation. Avoid contact with skin or eyes. In the event of contact, rinse affected part of your body with water for at least 15 minutes. Seek medical attention if reddening or irritation occurs. Keep container tightly closed. Store in a cool, dry location away from incompatible materials. Clean-up spills promptly. This product will not contribute to the intensity of a fire.TARGET ORGANS: Skin, eyes.WHMIS SYMBOLS: Not applicable.

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## 16. OTHER INFORMATION

**PREPARED BY:**CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. AMEREX Corporation assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, AMEREX Corporation assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

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## ABC DRY CHEMICAL MSDS PAGE 6 OF 8

### DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on an MSDS. Some of these which are commonly used include the following:

**CAS #:** This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer- related searching.

**EXPOSURE LIMITS IN AIR:**

**ACGIH** - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

**TLV - Threshold Limit Value** - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour **Time Weighted Average (TWA)**, the 15-minute **Short Term Exposure Limit**, and the instantaneous Ceiling Level. Skin adsorption effects must also be considered.

**OSHA** - U.S. Occupational Safety and Health Administration.

**PEL - Permissible Exposure Limit** - this exposure value means exactly the same as a TLV, except that it is enforceable by OSHA.

**The IDLH - Immediately Dangerous to Life and Health** level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

**The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA).

NIOSH issues exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

**FLAMMABILITY LIMITS IN AIR:** Much of the information related to

**TOXICOLOGICAL INFORMATION:** Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD50** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC50** - Lethal Concentration (gases) which kills 50% of the exposed animals; ppm concentration expressed in parts of material per million parts of air or water; **mg/m3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom; **TDo**, **LDLo**, and **LDo**, the lowest dose to cause death.

**REGULATORY INFORMATION**

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazard information System. **DOT** and **CTC** are the U.S. Department of Transportation and the Canadian Transportation Commission, respectively. These are: **Superfund Amendments and Reauthorization Act (SARA)**; the **Toxic Substance Control Act (TSCA)**; Marine Pollutant status

fire and explosion is derived from the **National Fire Protection Association (NFPA)**. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

according to the DOT; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.

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**ABC DRY CHEMICAL MSDS  
PAGE 7 OF 8**

**FIRE EXTINGUISHER  
Cautions and Warnings**

**Fire extinguishers are designed and produced for the specific purpose of providing a safe and efficient safety tool to be used only in the fighting of fires. Improper or careless use may cause severe bodily injury and/or property damage.**

**Contents are under pressure which is necessary to deliver the contained extinguishing agent to the fire source. Please take note of the following safety information:**

- **Contents are under pressure. Do not puncture, incinerate, or discharge into another person's face.**
- **Do not store at high temperatures above 120 degrees F or 49 degrees C.**
- **Keep away from small children.**
- **Do not use if the extinguisher appears to be damaged or corroded.**
- **Avoid inhaling the extinguishing agent. Avoid inhaling smoke and fumes - all fires release toxic substances that are harmful. DO NOT remain in a closed area after use; evacuate the area immediately and ventilate thoroughly before re-entering.**
- **Although extinguishing agents are non-toxic when used properly, contact with them may cause irritation to eyes, nose, throat, and other allergic symptoms.**

**Refer to specific extinguishing agent material safety data sheet for additional information.**

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**AVOID INHALING SMOKE AND FUMES; ALL FIRES  
RELEASE TOXIC SUBSTANCES THAT ARE HARMFUL.  
DO NOT REMAIN IN CLOSED AREA AFTER USE.  
VENTILATE CLOSED AREAS BEFORE RETURNING.**

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**ABC DRY CHEMICAL MSDS  
PAGE 8 OF 8**





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### Section 1 — Chemical Product and Company Identification

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## Sodium Nitrite

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

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### Section 2 — Composition, Information on Ingredients

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Sodium Nitrate

CAS#: 7632-00-0

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### Section 3 — Hazards Identification

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White or very slightly yellowish crystals or powder. Odorless.

Highly toxic by ingestion and inhalation. Ingestion of one to two grams has caused death in humans.

Body tissue irritant. Avoid all body tissue contact.

Strong oxidizer.

#### FLINN AT-A-GLANCE

Health-3

Flammability-0

Reactivity-3

Exposure-1

Storage-3

0 is low hazard, 3 is high hazard

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### Section 4 — First Aid Measures

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Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Rinse out mouth, give 1 to 2 cups of water or milk, induce vomiting. Call a physician or poison control at once.

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### Section 5 — Fire Fighting Measures

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Flammable solid.

Strong oxidizer. Fire and explosion risk when in contact with combustible materials.

When heated to decomposition, emits toxic fumes of NO<sub>x</sub> and Na<sub>2</sub>O.

**Fire Fighting Instructions:** Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive mode.

#### NFPA CODE

None Established

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### Section 6 — Accidental Release Measures

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Restrict unprotected personnel from area. Sweep up, place in sealed bag or container and dispose. Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

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### Section 7 — Handling and Storage

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Flinn Suggested Chemical Storage Pattern: Inorganic #3. Store with amides, nitrates and nitrites.

Store in a cool dry place. Store in Flinn Chem-Saf Bag, and lock up in a poison cabinet. Use and dispense in a hood.

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### Section 8 — Exposure Controls, Personal Protection

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Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Use exhaust ventilation to keep airborne concentrations low.

### Section 9 — Physical and Chemical Properties

White or very slightly yellowish crystals or powder. Odorless.  
Solubility: Soluble in water; slightly in alcohol.  
Formula: NaNO<sub>2</sub>  
Formula Weight: 69.00

Specific Gravity: 72.168  
Melting Point: 271 C  
Boiling Point: 320 C (dec.)

### Section 10 — Stability and Reactivity

Avoid contact with strong reducers, finely powdered metals, combustible materials, and strong acids.  
Shelf life: Indefinite.

### Section 11 — Toxicological Information

Acute effects: Toxic, irritant  
Chronic effects: Possible mutagen  
Target organs: Blood, cardiovascular system

ORL-RAT LD50: 85 mg/kg  
IHL-RAT LC50: 5500 ug/m<sup>3</sup>  
SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

### Section 12 — Ecological Information

Data not yet available.

### Section 13 — Disposal Considerations

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #12b is one option.

### Section 14 — Transport Information

Shipping Name: Sodium nitrite  
Hazard Class: 5.1, Oxidizer  
UN Number: UN1500

N/A = Not applicable

### Section 15 — Regulatory Information

TSCA-listed, EINECS-listed (231-555-9), RCRA code D001.

### Section 16 — Other Information

Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

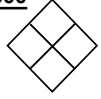
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P.O. Box 219 Batavia IL 60510  
(800) 452-1261 Fax (866) 452-1436

## SECTION I NAME 24 HOUR EMERGENCY ASSISTANCE

Product	Buffer Solution pH7	<b>416-984-3000</b>  <b>NFPA</b>	<table border="1"> <tr><td>Health</td><td>0</td></tr> <tr><td>Flammability</td><td>0</td></tr> <tr><td>Reactivity</td><td>0</td></tr> </table>	Health	0	Flammability	0	Reactivity	0
Health	0								
Flammability	0								
Reactivity	0								
Chemical Synonyms	N/A								
Formula	Mixture.	<b>HAZARD RATING</b> LEAST SLIGHT MODERATE HIGH EXTREME 0 1 2 3 4	<b>WHMIS</b> 3 4						
CAS No.	Mixture.								

## SECTION II DANGEROUS INGREDIENTS

Name	%	TLV Units
Potassium phosphate monobasic: CAS # 7778-77-0	0.718%	N/A
Sodium hydroxide: CAS # 1310-73-2	0.127-0.195%	Ceiling 2 ppm (air)
Water: CAS # 7732-18-5	~ 99%	N/A

**CAUTION!**

## SECTION III PHYSICAL DATA

Melting Point (°C)	Freezes @ ~ 0°C	Specific Gravity (H <sub>2</sub> O = 1)	~ 1.0
Boiling Point (°C)	~ 100°C	Percent Volatile by Volume (%)	> 99%
Vapor Pressure (mm Hg)	14 (water)	Evaporation Rate (Water = 1)	< 1
Vapor Density (Air=1)	0.7 (water)		
Solubility in Water	Complete.		
Appearance & Odor	Yellow liquid; no odor.		

## SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash point	Non-combustible.	Flammable Limits in Air % by Volume	N/A	Lower	Upper
Firefighting Procedures	Use dry chemical, CO <sub>2</sub> , alcohol foam, or water spray. In fire conditions, fire-fighters should wear an appropriate mask or a self-containing breathing apparatus.				

### Flammability and Explosion Hazards

In fire conditions, water may evaporate from this solution which may cause hazardous decomposition products to be formed as dust or fume.

**TDG** Not controlled under TDG.

## SECTION V REACTIVITY DATA

Chemical Stability	Yes	X	If no. under what conditions?
	No		
Incompatible with Other products	Yes	X	Acids, alkalis.
	No		
Hazardous Decomposition Products	Phosphates, sodium oxides, hydroxides.		
Reactive under what conditions	No specific information is available.		

## SECTION VI TOXICOLOGICAL PROPERTIES

Route of Entry	Inhalation. Ingestion.
TLV	N/A
Toxicity for animals	N/A
Chronic effects on humans	Repeated or prolonged exposure to the substance can produce target organ damage. Target organs: None known.
Acute effects on humans	May be harmful if inhaled, swallowed. May cause eye irritation, skin irritation.

## SECTION VII PREVENTIVE MEASURES

Waste Disposal	Discharge, treatment, or disposal may be subject to local laws. Consult your local or regional authorities.
Storage	Keep container dry. Keep in a cool place. Keep container tightly closed.
Precautions	Avoid contact with skin and eyes. DO NOT breathe vapor or spray. DO NOT ingest. If ingested, seek medical advice immediately.
Spill or leak	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container.
Protective Clothing	Splash goggles, lab coat, vapor respirator, gloves.

## SECTION VIII FIRST AID MEASURES

Specific first aid measures	Ingestion: Call physician or Poison Control Center immediately. Induce vomiting only if advised by the appropriate medical personnel. Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention. Skin contact: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Allow victim to rest in a well ventilated area. Seek immediate medical attention.
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## SECTION IX PREPARATION OF THE MSDS

Rev. No. 2 Date November 20, 2002 Approved Michael Raszeja

## SECTION I Identification

Produit	Solution de tampon pH7
Synonymes	Sans objet.
Formule	Mélange.
# CAS	Mélange.

## Telephone D'urgence

416-984-3000

NFPA



Santé	0
Flammabilité	0
Reactivité	0

Niveau de risque

Minime	Légère	Modéré	Sérieux	Extrême
0	1	2	3	4

WHMIS

## SECTION II Ingrédients Dangereux

Nom	%	TWA
Phosphate de potassium monobasique: CAS # 7778-77-0	0,718%	Sans objet.
Hydroxyde de sodium: CAS # 1310-73-2	0,127-0,195%	Ceiling 2 ppm (air)
L'eau: CAS # 7732-18-5	~ 99%	Sans objet.

**ATTENTION!**

## SECTION III Caractéristiques Physiques

Point de fusion (°C)	Gelers @ ~ 0°C	Gravité spécifique (Eau = 1)	~ 1,0
Point d'ébullition (°C)	~ 100°C	Volatilité % par volume	> 99%
Tension de vapeur (mm Hg)	14 (l'eau)	Taux d'évaporation (Eau = 1)	< 1
Densité de la vapeur (Air=1)	0,7 (l'eau)		
Solubilité	Complet.		
Odeur et apparence	Liquide jaune; inodore.		

## SECTION IV Risques D'incendie ou D'explosion

Point d'éclair	Ininflammable.	Limites d'inflammabilité % par volume	Sans objet.	Seuil minimal	Seuil maximal
Moyens d'extinction	Utiliser des poudres chimiques sèches, du CO <sub>2</sub> , une mousse d'alcool ou de l'eau pulvérisée. En cas de feu, sapeur-pompier devra porter en masque adéquate ou un respirateur autonome.				

### Inflammabilité et risques d'explosion

En états du feu, l'eau peut s'évaporer de cette solution, qui peut causer les produits dangereux de décomposition d'être formée comme poussière ou vapeur.

## TMD Substance non réglementée par le TMD (Canada).

Au meilleur de nos connaissances, l'information contenue dans ce document est exacte. Toutefois, ni le fournisseur ci-haut mentionné ni aucune de ses succursales ne peut assumer quelque responsabilité que ce soit en ce qui a trait à l'exactitude ou à l'état complet de l'information contenue dans ce document. La détermination finale de la convenance de tout matériel ou produit est la responsabilité exclusive de l'utilisateur. Tous les matériaux ou produits peuvent présenter certains risques et devraient être utilisés avec prudence. Bien que certains risques soient décrits dans ce document, nous ne pouvons garantir que ce sont les seuls risques qui existent.

## SECTION V Données sur la Réactivité

BB0407

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Chimique Stabilité	oui	X	Si non, dans quelles condition?
	non		
Incompatibilité avec d'autres produits	oui	X	Acides, alcalis.
	non		

Produits de décomposition dangereux	Phosphates, oxyde de sodium, hydroxydes.
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Conditions de Réactivité	Aucune information spécifique n'est disponible.
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## SECTION VI Propriétés Toxicologiques

Voies d'absorption	Inhalation. Ingestion.
LMP	Sans objet.
Toxicité pour les animaux	Sans objet.
Effets chroniques sur les humains	Une exposition répétée ou prolongée à la substance peut entraîner des troubles à certains organes cible. On ne connaît aucun organe de cible.
Effets aiguë sur les humains	Peut être nocif en cas d'inhalation ou en cas d'ingestion. Peut provoquer une irritation des yeux, une irritation de la peau.

## SECTION VII Mesures Préventives

Élimination des résidus	Consulter vos autorités locales ou régionales.
Entreposage	Conservé le récipient à l'abri de l'humidité. Conservé dans un endroit frais. Conservé le récipient bien fermé.
Précautions	Éviter tout contact avec la peau et les yeux. NE PAS inhaler les vapeurs ou aérosols. NE PAS ingérer. Si ingéré, consulter immédiatement un médecin.
Déversement ou fuite	Diluer avec de l'eau et absorber avec une moppe, ou absorber avec une substance inerte SÈCHE et mettre dans un contenant de récupération approprié.
Vêtements de protection	Lunettes anti-éclaboussures, blouse de laboratoire (sarrau), respirateur anti-vapeurs, gants.

## SECTION VIII Premiers Soins

Premier Soins Particuliers à Administrer	Ingestion: Consulter un médecin ou le centre de poison commande immédiatement. Induisez le vomissement seulement s'informé par le personnel médical approprié. Contact oculaire: Vérifier si la victime porte des verres de contact et dans ce cas lui les enlever. Rincer les yeux immédiatement à l'eau courante pendant au moins 15 minutes en gardant les paupières ouvertes. Obtenir de l'aide médicale. Contact cutané: Laver doucement et entièrement la peau contaminée à l'eau courante avec un savon doux et non-abrasif. Inhalation: Sortir la victime à l'air frais. Si elle ne respire plus il faut lui donner de la respiration artificielle. Si la respiration est difficile, donnez l'oxygène. Assurez-vous que la victime se repose dans un endroit bien aéré. Obtenir immédiatement de l'aide médicale.
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## SECTION IX Renseignements sur la Préparation de la FS

# Rev.	2	Date	20 novembre, 2002	Vérfifié par	Michael Raszeja
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**MATERIAL SAFETY DATA SHEET**

S  
CAROLINA BIOLOGICAL

Revised: 09/05/00  
Replaces: None  
Printed: 08/04/02

**1. PRODUCT DESCRIPTION**

Product Name: Sulfuric Acid, 1M  
Product Code(s): 84-0489, 89-3423  
Size: 1 L  
Chemical Name: Sulfuric Acid Solution  
CAS Number: 7664-93-9  
Formula: See section 2  
Synonyms: Sulfuric Acid, 2N  
Distributor: Carolina Biological Supply Company  
2700 York Road  
Burlington, NC 27215

Chemical Information: 800-227-1150 (8am-5pm (ET) M-F)  
Chemtrec (Transportation Spill Response 24 hours): 800-424-9300

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Principle Hazardous Components: Sulfuric Acid(CAS# 7664-93-9) 5%  
TLV and PEL units: ACGIH-TLV 1 mg/m3 (TWA), 3 mg/m3 STEL  
OSHA-PEL 1 mg/m3 (TWA)

**3. HAZARD IDENTIFICATION**

Emergency Overview: Harmful if swallowed. Contact causes eye burns.  
Irritating on contact with skin or mucous membranes; may cause burns.  
Potential Health Effects:  
Eyes: May cause irritation.  
Skin: May cause irritation.  
Ingestion: May cause gastrointestinal discomfort.  
Inhalation: May cause irritation to respiratory tract.

**4. FIRST AID MEASURES**

Emergency and First Aid Procedures:  
Eyes - Flush with water for at least 15 minutes, raising and lowering eyelids occasionally. Get medical attention if irritation persists.  
Skin - Thoroughly wash exposed area for at least 15 minutes. Remove contaminated clothing. Launder contaminated clothing before reuse. Get medical attention if irritation persists.  
Ingestion - If swallowed, if conscious, give plenty of water. Immediately call a physician or poison control center. Never give anything by mouth to an unconscious person.  
Inhalation - Remove to fresh air. Give oxygen if breathing is difficult; give artificial respiration if breathing has stopped. Keep person warm, quiet, and get medical attention.

**5. FIREFIGHTING PROCEDURES**

Flash Point(Method Used): Not flammable  
NFPA Rating: Health: 2  
Fire: 0  
Reactivity: 1

Extinguisher Media:  
Use media suitable to extinguish surrounding fire.

Flammable Limits in Air % by Volume: N/A  
Autoignition Temperature: N/A

Special Firefighting Procedures:  
Firefighters should wear full protective equipment and NIOSH approved

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self-contained breathing apparatus.  
Unusual Fire and Explosion Hazards: Thermal decomposition produces toxic fumes. Is a strong oxidant, and in contact with organic materials (e.g. chlorates, carbides, fulminates, picrates) may cause fires and explosions.  
Reacts violently with many substances with generation of heat. Attacks base metals ( except lead) forming combustible hydrogen gas.

**6. SPILL OR LEAK PROCEDURES**

Steps to be Taken in Case Material is Released or Spilled:  
Ventilate area of spill. Eliminate all sources of ignition.  
Remove all non-essential personnel from area. Clean-up personnel should wear proper protective equipment and clothing. Absorb material with suitable absorbent and containerize for disposal.

**7. SPECIAL PRECAUTIONS**

Precautions to be Taken in Handling or Storing: Keep in tightly closed container. Store in cool, dry area. Do not store near metal powders or other reducing materials.  
Other Precautions: Do not get in eyes, on skin, or on clothing.

**8. SPECIAL PROTECTION INFORMATION**

Respiratory Protection(Specify Type):  
A NIOSH/MSHA chemical cartridge respirator should be worn if PEL or TLV is exceeded.

Ventilation:  
Local Exhaust: Yes  
Mechanical(General): Yes  
Special: No  
Other: No

Protective Gloves:  
Rubber, neoprene, PVC, or equivalent.

Eye Protection:  
Splash proof chemical safety goggles should be worn at all times.

Other Protective Clothing or Equipment:  
Lab coat, eye wash, and safety shower.

**9. PHYSICAL DATA**

Molecular Weight: 98.08  
Melting Point: N/A  
Boiling Point: -2C  
Vapor Pressure: N/A  
Vapor Density(Air=1): N/A  
Specific Gravity(H2O=1): 1.03  
Percent Volatile by Volume: N/A  
Evaporation Rate(H2O=1): N/A  
Solubility in Water: Miscible  
Appearance and Odor: Clear, colorless liquid, Sulfuric acid is oily

**10. REACTIVITY DATA**

**MATERIAL SAFETY DATA SHEET**

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Revised: 09/05/00  
Replaces: None  
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Stability: Stable  
Conditions to Avoid: Can react with powdered metals to form flammable hydrogen gas.  
Incompatibility(Materials to Avoid): Bases, oxidizers, organic material, halogens or interhalogens, lithium nitrate, metal acetylides, metal oxides, metals, potassium chlorate, sodium hydride.  
Hazardous Decomposition Products: SOx, Will react with water or steam to produce toxic and corrosive fumes.  
Hazardous Polymerization: Will not occur

**11. TOXICITY DATA**

Toxicity Data: orl-rat LD50: 2140 mg/kg; ihl-gpg LC50: 510 mg/m3/2H  
Effects of Overexposure:  
Acute: See section 3  
Chronic: No chronic effects data found. Not listed as causing cancer by IARC, NTP, or OSHA.  
Conditions Aggravated by Overexposure: Pre-existing conditions of the eyes, nose, throat, and skin.  
Target Organs: Skin, nose, throat, and skin.  
Primary Route(s) of Entry: Inhalation, ingestion or skin contact.

**12. ECOLOGICAL DATA**

EPA Waste Numbers: D002

**13. DISPOSAL INFORMATION**

Waste Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations.  
Always contact a permitted waste disposer (TSD) to assure compliance.

**14. TRANSPORT INFORMATION**

Description: Sulfuric acid, 8, UN2796, II

**15. REGULATORY INFORMATION**

EPA TSCA Status: On TSCA Inventory  
Hazard Category for SARA Section 311/312 Reporting: Acute

		SARA Sec. 313		
	SARA EHS	Chemicals	CERCLA	RCRA
Product or	Sec. 302	Name Chemical	Sec. 103	Sec.
Components	TPQ	List Category	RQ lbs.	
261.33				

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—	Sulfuric Acid	1000	Yes	No	1000	No
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**16. ADDITIONAL INFORMATION**

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. Any employer must

**MATERIAL SAFETY DATA SHEET**

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CAROLINA BIOLOGICAL

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carefully assess the applicability of any information contained herein in regards to the particular use to which the employer puts the material.

Glossary

ACGIH.....American Conference of Governmental Industrial Hygienists

CAS Number..Chemical Services Abstract Number

CERCLA.....Comprehensive Environmental Response, Compensation, and Liability Act

DOT.....U.S. Department of Transportation

IARC.....International Agency of Research on Cancer

N/A.....Not Available

NTP.....National Toxicology Program

OSHA.....Occupational Safety and Health Administration

PEL.....Permissible Exposure Limit

ppm.....parts per million

RCRA.....Resource Conservation and Recovery Act

SARA.....Superfund Amendments and Reauthorization Act

TLV.....Threshold Limit Value

TSCA.....Toxic Substances Control Act



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### Section 1 — Chemical Product and Company Identification

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## Sulfuric Acid Solution

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

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### Section 2 — Composition, Information on Ingredients

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Sulfuric Acid (7664-93-9) 0.3-2.8%, Water (7732-18-5) 97-99.7%  
0.5M and less concentrated

CAS#: None Established

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### Section 3 — Hazards Identification

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Clear, colorless liquid. Slight sulfurous odor.  
Slightly toxic by ingestion. Severely irritating to body tissues, especially eyes.  
Avoid all body tissue contact.

#### FLINN AT-A-GLANCE

Health-1  
Flammability-0  
Reactivity-1  
Exposure-1  
Storage-3

0 is low hazard, 3 is high hazard

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### Section 4 — First Aid Measures

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Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Give 1 to 2 cups of water or milk, followed by a gastric antacid, such as milk of magnesia. Do not induce vomiting. Call a physician or poison control at once.

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### Section 5 — Fire Fighting Measures

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Non flammable liquid.

When heated to decomposition, emits toxic fumes of SO<sub>x</sub>.

**Fire Fighting Instructions:** Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

None Established

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### Section 6 — Accidental Release Measures

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Restrict unprotected personnel from area. Remove all ignition sources and ventilate area. Contain spill with sand and absorbent material, neutralize with sodium bicarbonate or calcium hydroxide and deposit in sealed bag or container. See Sections 8 and 13 for further information.

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### Section 7 — Handling and Storage

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Flinn Suggested Chemical Storage Pattern: Inorganic #9. Store with acids, not nitric acid.

Store in a dedicated acid cabinet and away from any source of water; if an acid cabinet is not available, store in Flinn Saf-Cube.

Use and dispense in a hood.

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### Section 8 — Exposure Controls, Personal Protection

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Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron.

Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

Exposure guidelines: TWA 1 mg/m<sup>3</sup>, STEL 3 mg/m<sup>3</sup> (OSHA, ACGIH)

### Section 9 — Physical and Chemical Properties

Clear, colorless liquid. Slight sulfurous odor.  
Concentration: 0.05 to 0.5 Molar  
Miscible with water evolving much heat.  
Formula: H<sub>2</sub>SO<sub>4</sub>  
Formula Weight: 98.08

### Section 10 — Stability and Reactivity

Avoid contact with strong bases, reacts violently with water.  
Shelf Life: Good, if stored safely.

### Section 11 — Toxicological Information

Acute effects: Severely corrosive	ORL-RAT LD50: 2140 mg/kg as sulfuric acid
Chronic effects: N.A.	IHL-RAT LC50: 510 mg/m <sup>3</sup> /2H
Target organs: Eyes, skin	SKN-RBT LD50: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

### Section 12 — Ecological Information

Data not yet available.

### Section 13 — Disposal Considerations

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #24b is one option.

### Section 14 — Transport Information

Shipping Name: Sulfuric Acid  
Hazard Class: 8, Corrosive  
UN Number: UN2796

N/A = Not applicable

### Section 15 — Regulatory Information

TSCA-listed, EINECS-listed (231-639-5). RCRA code D002, D003.

### Section 16 — Other Information

Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

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