



BTIproductsLP

MATERIAL SAFETY DATA SHEET**Name: BTI-LNB Media****SECTION I**

Manufacturer's Name: BTI Products, LP
Address: 652 Silver Hills Road
 Bayfield, CO 81122
Emergency Phone: (800) 798-4650
Telephone: (970) 884-4629

Revision Date: 01/27/06**PAGE 1 of 1****SECTION II - Hazardous Ingredients/Identity Information**

This material is not hazardous as defined by OSHA 1910.1200

SECTION III - Physical/Chemical Composition

Boiling Point: NA	Specific Gravity (H ₂ O = 1): NA	Vapor Pressure (mm Hg): NA
Melting Point: NA	Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate): NA
Solubility in Water: NA	Appearance and Odor: Almost colorless liquid	

SECTION IV - Fire and Explosion Hazard Data

Flash Point: NA	Flammable Limits: NA	Extinguishing Media: NA
Special Fire Fighting Procedures: NA	Unusual Fire and Explosion Hazards: NA	

SECTION V - Reactivity Data

Stability: NA	Unstable: NA	Stable: NA	Conditions to Avoid: NA
Hazardous Polymerization: NA	May Occur: NA	Will Not Occur: NA	Conditions to Avoid: NA
Incompatibility (Materials to Avoid): NA		Hazardous Decomposition or By-products: NA	

SECTION VI - Health Hazard Data

Routes of Entry:	Inhalation? NA	Skin? NA	Ingestion? NA
Carcinogenicity: NA	NTP? NA	IARC Monographs? NA	OSHA Regulated? NA
Health Hazards (Acute and Chronic): NA		Signs and Symptoms of Exposure: NA	
Medical Conditions Generally Aggravated by Exposure: NA		Emergency and First Aid Procedures: NA	

SECTION VII - Precautions for Safe Handling and Use

Waste Disposal Method: NA	Handling and Storing Precautions: NA	Other Precautions: NA
Steps to be Taken in Case Material is Released or Spilled: Wipe up with absorbent material.		

SECTION VIII - Control Measures

Respiratory Protection: NA	Ventilation: NA	Local Exhaust: NA
Special: NA	Protective Gloves: NA	Mechanical: NA
Other: NA	Other Protective Clothing or Equipment: NA	Work/Hygienic Practices: NA

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BTIproductsLP

MATERIAL SAFETY DATA SHEET**Name: BTI-IRB Media****SECTION I**

Manufacturer's Name: BTI Products, LP
Address: 652 Silver Hills Road
 Bayfield, CO 81122
Emergency Phone: (800) 798-4650
Telephone: (970) 884-4629

Revision Date: 01/27/06**PAGE 1 of 1****SECTION II - Hazardous Ingredients/Identity Information**

This material is not hazardous as defined by OSHA 1910.1200

SECTION III - Physical/Chemical Composition

Boiling Point: NA	Specific Gravity (H ₂ O = 1): NA	Vapor Pressure (mm Hg): NA
Melting Point: NA	Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate): NA
Solubility in Water: NA	Appearance and Odor: Amber liquid	

SECTION IV - Fire and Explosion Hazard Data

Flash Point: NA	Flammable Limits: NA	Extinguishing Media: NA
Special Fire Fighting Procedures: NA	Unusual Fire and Explosion Hazards: NA	

SECTION V - Reactivity Data

Stability: NA	Unstable: NA	Stable: NA	Conditions to Avoid: NA
Hazardous Polymerization: NA	May Occur: NA	Will Not Occur: NA	Conditions to Avoid: NA
Incompatibility (Materials to Avoid): NA		Hazardous Decomposition or By-products: NA	

SECTION VI - Health Hazard Data

Routes of Entry:	Inhalation? NA	Skin? NA	Ingestion? NA
Carcinogenicity: NA	NTP? NA	IARC Monographs? NA	OSHA Regulated? NA
Health Hazards (Acute and Chronic): NA		Signs and Symptoms of Exposure: NA	
Medical Conditions Generally Aggravated by Exposure: NA		Emergency and First Aid Procedures: NA	

SECTION VII - Precautions for Safe Handling and Use

Waste Disposal Method: NA	Handling and Storing Precautions: NA	Other Precautions: NA
Steps to be Taken in Case Material is Released or Spilled: Wipe up with absorbent material.		

SECTION VIII - Control Measures

Respiratory Protection: NA	Ventilation: NA	Local Exhaust: NA
Special: NA	Protective Gloves: NA	Mechanical: NA
Other: NA	Other Protective Clothing or Equipment: NA	Work/Hygienic Practices: NA

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BTIproductsLP

MATERIAL SAFETY DATA SHEETName: **BTI-ANA Media****SECTION I**

Manufacturer's Name: BTI Products, LP
Address: 652 Silver Hills Road
 Bayfield, CO 81122
Emergency Phone: (800) 798-4650
Telephone: (970) 884-4629

Revision Date: 01/27/06

PAGE 1 of 1

SECTION II - Hazardous Ingredients/Identity Information

This material is not hazardous as defined by OSHA 1910.1200

SECTION III - Physical/Chemical Composition

Boiling Point: 94°C	Specific Gravity (H ₂ O = 1): NA	Vapor Pressure (mm Hg): NA
Melting Point: NA	Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate): NA
Solubility in Water: NA	Appearance and Odor: Golden yellow liquid	

SECTION IV - Fire and Explosion Hazard Data

Flash Point: NA	Flammable Limits: NA	Extinguishing Media: NA
Special Fire Fighting Procedures: NA	Unusual Fire and Explosion Hazards: NA	

SECTION V - Reactivity Data

Stability: NA	Unstable: NA	Stable: NA	Conditions to Avoid: NA
Hazardous Polymerization: NA	May Occur: NA	Will Not Occur: NA	Conditions to Avoid: NA
Incompatibility (Materials to Avoid): NA		Hazardous Decomposition or By-products: NA	

SECTION VI - Health Hazard Data

Routes of Entry:	Inhalation? NA	Skin? NA	Ingestion? NA
Carcinogenicity: NA	NTP? NA	IARC Monographs? NA	OSHA Regulated? NA
Health Hazards (Acute and Chronic): NA		Signs and Symptoms of Exposure: NA	
Medical Conditions Generally Aggravated by Exposure: NA		Emergency and First Aid Procedures: NA	

SECTION VII - Precautions for Safe Handling and Use

Waste Disposal Method: NA	Handling and Storing Precautions: NA	Other Precautions: NA
Steps to be Taken in Case Material is Released or Spilled: Wipe up with absorbent material.		

SECTION VIII - Control Measures

Respiratory Protection: NA	Ventilation: NA	Local Exhaust: NA
Special: NA	Protective Gloves: NA	Mechanical: NA
Other: NA	Other Protective Clothing or Equipment: NA	Work/Hygienic Practices: NA

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BTIproductsLP

MATERIAL SAFETY DATA SHEET**Name: BTI-APB Media****SECTION I**

Manufacturer's Name: BTI Products, LP
Address: 652 Silver Hills Road
 Bayfield, CO 81122
Emergency Phone: (800) 798-4650
Telephone: (970) 884-4629

Revision Date: 01/27/06**PAGE 1 of 1****SECTION II - Hazardous Ingredients/Identity Information**

This material is not hazardous as defined by OSHA 1910.1200

SECTION III - Physical/Chemical Composition

Boiling Point: 93°C	Specific Gravity (H ₂ O = 1): NA	Vapor Pressure (mm Hg): NA
Melting Point: NA	Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate): NA
Solubility in Water: NA	Appearance and Odor: Red/orange liquid	

SECTION IV - Fire and Explosion Hazard Data

Flash Point: NA	Flammable Limits: NA	Extinguishing Media: NA
Special Fire Fighting Procedures: NA	Unusual Fire and Explosion Hazards: NA	

SECTION V - Reactivity Data

Stability: NA	Unstable: NA	Stable: NA	Conditions to Avoid: NA
Hazardous Polymerization: NA	May Occur: NA	Will Not Occur: NA	Conditions to Avoid: NA
Incompatibility (Materials to Avoid): NA		Hazardous Decomposition or By-products: NA	

SECTION VI - Health Hazard Data

Routes of Entry:	Inhalation? NA	Skin? NA	Ingestion? NA
Carcinogenicity: NA	NTP? NA	IARC Monographs? NA	OSHA Regulated? NA
Health Hazards (Acute and Chronic): NA		Signs and Symptoms of Exposure: NA	
Medical Conditions Generally Aggravated by Exposure: NA		Emergency and First Aid Procedures: NA	

SECTION VII - Precautions for Safe Handling and Use

Waste Disposal Method: NA	Handling and Storing Precautions: NA	Other Precautions: NA
Steps to be Taken in Case Material is Released or Spilled: Wipe up with absorbent material.		

SECTION VIII - Control Measures

Respiratory Protection: NA	Ventilation: NA	Local Exhaust: NA
Special: NA	Protective Gloves: NA	Mechanical: NA
Other: NA	Other Protective Clothing or Equipment: NA	Work/Hygienic Practices: NA

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MATERIAL SAFETY DATA SHEET**Name: BTI-SRB Media****SECTION I**

Manufacturer's Name: BTI Products, LP
Address: 652 Silver Hills Road
 Bayfield, CO 81122
Emergency Phone: (800) 798-4650
Telephone: (970) 884-4629

Revision Date: 01/27/06**PAGE 1 of 1****SECTION II - Hazardous Ingredients/Identity Information**

This material is not hazardous as defined by OSHA 1910.1200

SECTION III - Physical/Chemical Composition

Boiling Point: 93°C	Specific Gravity (H ₂ O = 1): NA	Vapor Pressure (mm Hg): NA
Melting Point: NA	Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate): NA
Solubility in Water: NA	Appearance and Odor: Red/orange liquid	

SECTION IV - Fire and Explosion Hazard Data

Flash Point: NA	Flammable Limits: NA	Extinguishing Media: NA
Special Fire Fighting Procedures: NA	Unusual Fire and Explosion Hazards: NA	

SECTION V - Reactivity Data

Stability: NA	Unstable: NA	Stable: NA	Conditions to Avoid: NA
Hazardous Polymerization: NA	May Occur: NA	Will Not Occur: NA	Conditions to Avoid: NA
Incompatibility (Materials to Avoid): NA		Hazardous Decomposition or By-products: NA	

SECTION VI - Health Hazard Data

Routes of Entry:	Inhalation? NA	Skin? NA	Ingestion? NA
Carcinogenicity: NA	NTP? NA	IARC Monographs? NA	OSHA Regulated? NA
Health Hazards (Acute and Chronic): NA		Signs and Symptoms of Exposure: NA	
Medical Conditions Generally Aggravated by Exposure: NA		Emergency and First Aid Procedures: NA	

SECTION VII - Precautions for Safe Handling and Use

Waste Disposal Method: NA	Handling and Storing Precautions: NA	Other Precautions: NA
Steps to be Taken in Case Material is Released or Spilled: Wipe up with absorbent material.		

SECTION VIII - Control Measures

Respiratory Protection: NA	Ventilation: NA	Local Exhaust: NA
Special: NA	Protective Gloves: NA	Mechanical: NA
Other: NA	Other Protective Clothing or Equipment: NA	Work/Hygienic Practices: NA

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BTIproductsLP

MATERIAL SAFETY DATA SHEET

**Name: BTI-PBS/F Solution
(Phosphate Buffered Solution with Formalin)**

SECTION I

Manufacturer's Name: BTI Products, LP **Revision Date:** 03/30/07
Address: 652 Silver Hills Road
 Bayfield, CO 81122
Emergency Phone: (800) 798-4650
Telephone: (970) 884-4629

SECTION II - Hazardous Ingredients/Identity Information

The components and their concentrations (as percent w/v) present in BTI-PBS/F solution are as follows:
 MSDS for full concentrations of these components are attached.

Component	CAS No.	Percentage
Formaldehyde (HCHO)	50-00-0	2.5

SECTION III - Physical/Chemical Composition

Boiling Point: unk Specific Gravity (H₂O = 1): unk Vapor Pressure (mm Hg): unk
 Melting Point: unk Vapor Density (Air = 1): unk Evaporation Rate (Butyl Acetate): unk
 Solubility in Water: unk Appearance and Odor: Colorless liquid, pungent odor

SECTION IV - Fire and Explosion Hazard Data

Flash Point: unk Flammable Limits: unk Extinguishing Media: unk
 Special Fire Fighting Procedures: unk Unusual Fire and Explosion Hazards: unk

SECTION V - Reactivity Data

Stability: unk Unstable: unk Stable: unk Conditions to Avoid: unk
 Hazardous Polymerization: unk May Occur: unk Will Not Occur: unk Conditions to Avoid: unk
 Incompatibility (Materials to Avoid): unk Hazardous Decomposition or By-products: unk

SECTION VI - Health Hazard Data

Routes of Entry: Inhalation? unk Skin? unk Ingestion? unk
 Carcinogenicity: unk NTP? unk IARC Monographs? unk OSHA Regulated? unk
 Health Hazards (Acute and Chronic): unk Signs and Symptoms of Exposure: unk
 Medical Conditions Generally Aggravated by Exposure: unk Emergency and First Aid Procedures: unk

SECTION VII - Precautions for Safe Handling and Use

Waste Disposal Method: unk Handling and Storing Precautions: unk Other Precautions: unk
 Steps to be Taken in Case Material is Released or Spilled: Wipe up with absorbent material.

SECTION VIII - Control Measures

Respiratory Protection: unk

Ventilation: unk

Local Exhaust: unk

Special: unk

Protective Gloves: unk

Mechanical: unk

Other: unk

Other Protective Clothing or Equipment: unk

Work/Hygienic Practices:unk

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SIGMA-ALDRICH

MATERIAL SAFETY DATA SHEET

Date Printed: 03/28/2007
 Date Updated: 03/20/2006
 Version 1.12

Section 1 - Product and Company Information

Product Name FORMALDEHYDE
 Product Number F1635
 Brand SIGMA

Company Sigma-Aldrich
 Address 3050 Spruce Street
 SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
 Fax: 800-325-5052
 Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
FORMALDEHYDE SOLUTION >35% (10-15% MEOH)	None	Yes

Ingredient Name	CAS #	Percent	SARA 313
FORMALDEHYDE	50-00-0	>= 35	Yes
METHANOL	67-56-1	>= 8 < 15	Yes
WATER	7732-18-5		No

Formula CH₂O

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic.

Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact. May cause heritable genetic damage.

Readily absorbed through skin. Lachrymator. Contains formaldehyde. Target organ(s): Kidneys. Eyes. Combustible. Confirmed Carcinogen (US). Calif. Prop. 65 carcinogen.

HMIS RATING

HEALTH: 3*
 FLAMMABILITY: 2
 REACTIVITY: 2

NFPA RATING

HEALTH: 3
 FLAMMABILITY: 2
 REACTIVITY: 2

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. Do not induce vomiting.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

133 °F 56 °C Method: closed cup

EXPLOSION LIMITS

Lower: 7 % Upper: 70 %

AUTOIGNITION TEMP

420 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
 Hand: Compatible chemical-resistant gloves.
 Eye: Chemical safety goggles.
 Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
	ACGIH	TLV	0.3 ppm

Section 9 - Physical/Chemical Properties

Appearance Physical State: Clear liquid
 Color: Colorless
 Odor: Pungent

Property	Value	At Temperature or Pressure
Molecular Weight	30.03 AMU	
pH	N/A	
BP/BP Range	100 °C	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	40 mmHg	39 °C
Vapor Density	1 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.09 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	1	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	Log Kow: 0.35	
Decomposition Temp.	N/A	
Flash Point	133 °F 56 °C	Method: closed cup
Explosion Limits	Lower: 7 %	

	Upper: 70 %
Flammability	N/A
Autoignition Temp	420 °C
Refractive Index	1.3765
Optical Rotation	N/A
Miscellaneous Data	N/A
Solubility	Solubility in Water:Complete

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents Incompatible with: aniline, phenol, isocyanates, anhydrides, Strong acids, Strong bases, Amines, Peroxides, Acid chlorides, Acid anhydrides, Alkali metals, Reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Toxic if absorbed through skin. Readily absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: Toxic if swallowed.

SENSITIZATION

Skin: May cause allergic skin reaction.

TARGET ORGAN(S) OR SYSTEM(S)

Eyes. Heart. Kidneys. Liver.

SIGNS AND SYMPTOMS OF EXPOSURE

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Exposure can cause: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. May cause convulsions. Gastrointestinal disturbances. Coughing, chest pains, difficulty in breathing.

CHRONIC EXPOSURE - CARCINOGEN

Result: This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

OSHA CARCINOGEN LIST

Rating: Known to be carcinogenic.

IARC CARCINOGEN LIST

Rating: Group 1 Group 1

ACGIH CARCINOGEN LIST

Rating: A2

IRIS/EPA CARCINOGEN LIST

Rating: Group B1

CHRONIC EXPOSURE - TERATOGEN

Result: Laboratory experiments have shown teratogenic effects.

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Section 12 - Ecological Information

N/A

PHYSICAL PROPERTIES AFFECTING ECOTOXICITY

BOD after 5 Days: 60 %

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Section 14 - Transport Information

DOT

Proper Shipping Name: Formaldehyde, solutions,
flammable

UN#: 1198

Class: 3

Packing Group: Packing Group III

Hazard Label: Flammable liquid

Hazard Label: Corrosive

PIH: Not PIH

IATA

Proper Shipping Name: Formaldehyde solution, flammable

IATA UN Number: 1198

Hazard Class: 3

Packing Group: III

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T

Indication of Danger: Toxic.

R: 23/24/25-34-39/23/24/25-40-43

Risk Statements: Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Toxic: danger of very serious

irreversible effects through inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact.

S: 26-36/37/39-45-51

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Use only in well ventilated areas.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic.

Risk Statements: Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact. May cause heritable genetic damage.

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Use only in well ventilated areas.

US Statements: Readily absorbed through skin. Lachrymator. Contains formaldehyde. Target organ(s): Kidneys. Eyes. Combustible. Confirmed Carcinogen (US). Calif. Prop. 65 carcinogen.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

NOTES: This product is or contains a component that is subject to SARA313 reporting requirements.

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65

California Prop - 65: This product is or contains chemical(s) known to the state of California to cause cancer.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice

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Creation Date: 11/03/88 (1071-18)
Revision Date: 10/30/06

MATERIAL SAFETY DATA SHEET

I. CHEMICAL IDENTIFICATION

TRADE NAME: DISSOLVED OXYGEN CHEMets®

CATALOG NO.: R-7512

DESCRIPTION: Reagent ampoules for the determination of dissolved oxygen in water. Each CHEMet™ contains approximately 0.50 mL of liquid reagent sealed under vacuum.

NFPA RATINGS: HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

II. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT: Indigo Carmine
 CAS NO.: 860-22-0 PERCENT: < 0.1

COMPONENT: Potassium Hydrogen Phthalate
 CAS NO.: 877-24-7 PERCENT: 1.0

COMPONENT: Diethylene Glycol
 CAS NO.: 111-46-6 PERCENT: 22.0

COMPONENT: Deionized Water
 CAS NO.: 7732-18-5 PERCENT: > 76

COMPONENT: Other components
 CAS NO.: N/A PERCENT: < 1.0

Any component of this mixture not specifically listed (e.g. "other components") is not considered to present a carcinogen hazard.

III. HAZARDS IDENTIFICATION

May be harmful if swallowed.

ACUTE TOXICITY: Irritation, nausea, diarrhea

CHRONIC TOXICITY: Ingestion of large amounts of diethylene glycol can cause liver or kidney lesions.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: liver or kidney disorders

IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Immediately flush eyes and skin with water for 15 minutes.

INGESTION: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Seek medical attention.

INHALATION: Remove individual to fresh air.

V. FIRE FIGHTING MEASURES

FLASH POINT: N/A AUTOIGNITION POINT: N/A
 FLAMMABILITY LIMITS: UPPER: N/A LOWER: N/A
 EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam

VI. ACCIDENTAL RELEASE MEASURES

Take up with absorbent material. Place in small containers for disposal.

VII. HANDLING AND STORAGE

Always wear eye protection when working with these ampoules.

WARNING: Do not break the tip of the ampoule unless it is completely immersed in your sample. Breaking the tip in the air may cause the glass ampoule to shatter.

If this product is used as directed, the user will not come in contact with or be exposed to any of its chemical components.

Wash thoroughly after handling. Avoid contact with eyes.

Fragile. Liquid in glass. Handle with care.

Exposure of this product to temperatures up to 120°F (49°C) or even below 32°F (0°C) will not create a safety hazard. For optimum analytical accuracy, the product should be stored in the dark and at room temperature.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

OSHA PEL & ACGIH TLV: None listed.

PROTECTIVE EQUIPMENT: Safety glasses

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE: Liquid APPEARANCE: Yellow ODOR: None

SOLUBILITY IN WATER: Complete pH: 4

BOILING POINT: 110°C MELTING POINT: -1°C

VAPOR PRESSURE: N/A SPECIFIC GRAVITY: 1.01

VAPOR DENSITY: N/A

X. STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to decomposition, oxides of carbon and potassium may be emitted. Stable under normal conditions.

XI. TOXICOLOGICAL INFORMATION

Carcinogen Status: None

No other data available at this time.

XII. ECOLOGICAL INFORMATION

Diethylene glycol has a low bioconcentration potential and is practically non-toxic to aquatic organisms.

No other data available at this time.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State and Local Regulations.

XIV. TRANSPORT INFORMATION

Not regulated.

XV. REGULATORY INFORMATION

EUROPEAN INFORMATION:

EU Symbols: None

Risk Phrases: None

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

CANADIAN INFORMATION:

WHMIS Classification: D2A

All chemical components of this product are listed on Canada's DSL.

U.S. INFORMATION:

All chemical components of this product are listed on the TSCA Inventory.

XVI. OTHER INFORMATION

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.

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SIGMA-ALDRICH

MATERIAL SAFETY DATA SHEET

Date Printed: 04/03/2007
Date Updated: 04/11/2006
Version 1.8

Section 1 - Product and Company Information

Product Name HYDROCHLORIC ACID SOLUTION 2.0 N
Product Number H3037
Brand SIGMA

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
HYDROCHLORIC ACID SOLUTION, >=5% - <10%	7647-01-0	No

Ingredient Name	CAS #	Percent	SARA 313
WATER	7732-18-5	>= 90 < 95	No
HYDROCHLORIC ACID	7647-01-0	>= 5 < 10	

Formula HCl
Synonyms Acide chlorhydrique (French) * Acido cloridrico (Italian) * Anhydrous hydrochloric acid * Chloorwaterstof (Dutch) * Chlorohydric acid * Chlorowodor (Polish) * Chlorwasserstoff (German) * Hydrochloride * Hydrogen chloride (ACGIH:OSHA) * Muriatic acid * Spirits of salt
RTECS Number: MW4025000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Irritant.
Irritating to eyes, respiratory system and skin.

HMIS RATING

HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING

HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing.

STORAGE

Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS

May develop pressure. Open carefully.

Decomposition Temp.	N/A
Flash Point	N/A
Explosion Limits	N/A
Flammability	N/A
Autoignition Temp	N/A
Refractive Index	N/A
Optical Rotation	N/A
Miscellaneous Data	N/A
Solubility	N/A

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Bases, Amines, Alkali metals, Metals.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen chloride gas.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

TOXICITY DATA

Oral

Man

2.857 mg/kg

LDLO

Remarks: Lungs, Thorax, or Respiration: Respiratory depression.

Gastrointestinal: Changes in structure or function of esophagus.

Vascular: BP lowering not characterized in autonomic section.

Oral

Woman

420 UL/KG

LDLO

Remarks: Behavioral: Excitement. Cardiac: Pulse rate. Kidney, Ureter, Bladder: Hematuria.

Inhalation

Human

1,300 ppm
LCLO

Inhalation
Human
3,000 ppm
LCLO

Inhalation
Rat
3,124 ppm
LC50
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Iritis.

Inhalation
Mouse
1,108 ppm
LC50
Remarks: Lungs, Thorax, or Respiration:Respiratory stimulation. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Skin and Appendages:Skin: After systemic exposure: Dermatitis, other

Intraperitoneal
Mouse
40142 UG/KG
LD50

Oral
Rabbit
900 mg/kg
LD50

IRRITATION DATA

Eyes
Rabbit
5 mg
30S
Remarks: Rinsed

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 450 MG/M3/1H
Route of Application: Inhalation
Exposure Time: (1D PRE)
Result: Specific Developmental Abnormalities: Homeostasis
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - MUTAGEN

Species: Hamster
Dose: 30 MMOL/L
Cell Type: lung
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 8 MMOL/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Hydrochloric acid
UN#: 1789
Class: 8
Packing Group: Packing Group III
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Hydrochloric acid
IATA UN Number: 1789
Hazard Class: 8
Packing Group: III

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xi
Indication of Danger: Irritant.
R: 36/37/38
Risk Statements: Irritating to eyes, respiratory system and skin.
S: 26
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Irritant.
Risk Statements: Irritating to eyes, respiratory system and skin.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in

accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.