

Lab

MATERIAL SAFETY DATA SHEET

B
CAROLINA BIOLOGICAL

Revised: 09/05/00
Replaces: None
Printed: 07/08/01

1. PRODUCT DESCRIPTION

Product Name: Biuret Reagent
Product Code(s): 84-8211, 84-8213, 20-2340, 20-2341, 10-1026
Size: 1 oz, 120 mL, 500 mL
Chemical Name: Does not apply- product is a mixture.
CAS Number: None assigned to this mixture- see individual elements

below
Formula: See section 2
Synonyms: None known
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:
Copper Sulfate, 5-Hydrate (CAS# 7758-99-8) 1.7%
Ethylene Glycol (CAS# 107-21-1) 9.3%
Sodium Hydroxide (CAS# 1310-73-2) 16.7%
TLV (Units): Water: None established.
Cupric Sulfate, 5-Hydrate: ACGIH-TLV 1 mg/m3
(Dust/Mists as Cu) (TWA); OSHA-PEL 1 mg/m3
(Dust/Mists as Cu) (TWA)
Ethylene Glycol: ACGIH-TLV Ceiling 50 ppm (vapor & mists);
OSHA-PEL Ceiling 50 ppm
Sodium Hydroxide: ACGIH-TLV Ceiling 2 mg/m3;
OSHA-PEL Ceiling 2 mg/m3

3. HAZARD IDENTIFICATION

Emergency Overview:
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): Not applicable

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NFPA Rating: None assigned for this product.

Extinguisher Media:

Use media suitable to extinguish surrounding fire.

Flammable Limits in Air % by Volume: Not applicable

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: This material will not burn. This material will not explode.

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: Store tightly closed in a

cool, dry area suitable for the storage of caustic materials. Wash thoroughly after handling.

Other Precautions: Do not take internally.

8. SPECIAL PROTECTION INFORMATION

Respiratory Protection(Specify Type):

Ventilation:

Local Exhaust: Acceptable

Mechanical(General): Preferred

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: No data available.

Melting Point: No data available.

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: Complete, product is an aqueous solution

Appearance and Odor: Clear, Blue solution with no odor

10. REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None Known

Incompatibility(Materials to Avoid): Water reactive materials, strong

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acids.

Hazardous Decomposition Products: If heated to thermal decomposition, this

material may give rise to toxic fumes of copper and/or oxides of carbon.

Hazardous Polymerization: Will not occur

11. TOXICITY DATA

Toxicity Data: To the best of our knowledge, the toxicological properties of this mixture have not been thoroughly evaluated. Data is listed for individual components.

Copper Sulfate, 5-Hydrate: orl-hmn TDLo: 272 mg/kg,

ipr-mam LD50: 7500 ug/kg.

Ethylene Glycol: ihl-hmn TCLo: 10000 mg/m3,

orl-hmn LDLo: 398 mg/kg.

Sodium Hydroxide: ipr-mus LD50: 40 mg/kg,

orl-rbt LDLo: 500 mg/kg.

Effects of Overexposure:

Acute: See section 3

Chronic: Copper Sulfate, 5-Hydrate, Ethylene Glycol, and Sodium Hydroxide: Mutation data cited. Not listed as causing cancer by IARC, NTP, or OSHA.

Conditions Aggravated by Overexposure: No data available.

Target Organs: Skin, liver, kidneys, nervous system.

Primary Route(s) of Entry: Inhalation, skin contact

12. ECOLOGICAL DATA

EPA Waste Numbers: No data available.

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: Corrosive liquids, n.o.s. (Sodium Hydroxide), 8, UN1760, II

15. REGULATORY INFORMATION

EPA TSCA Status: On TSCA Inventory

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

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

Copper Sulfate,

5-Hydrate

No

No

Copper Compound

No

No

Ethylene Glycol

No

Yes

No

No

No

Sodium Hydroxide

No

No

No

1000

No

16. ADDITIONAL INFORMATION

MATERIAL SAFETY DATA SHEET

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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

SECTION I

PRODUCT NAME: BIURET REAGENT

SIZE: 120ML, 500ML

PRODUCE CODES: 84-8211, 84-8213

CHEMICAL NAME: DOES NOT APPLY, PRODUCT IS A MIXTURE.

CAS NUMBER: NONE ASSIGNED TO THIS MIXTURE--SEE INDIVIDUAL ELEMENTS BELOW.

NIOSH/RTECS NUMBER: NONE ASSIGNED TO THIS MIXTURE--SEE INDIVIDUAL ELEMENTS BELOW

DISTRIBUTOR: CAROLINA BIOLOGICAL SUPPLY COMPANY

2700 YORK ROAD BURLINGTON, NC 27215

FORMULA: COPPER SULFATE, 5-HYDRATE 90.0G ETHYLENE GLYCOL 501.3G

SODIUM HYDROXIDE 900.0G WATER 3900.0 ML

FOR INFORMATION ON HEALTH HAZARDS CALL: 1-(919) 584-0381

FOR OTHER INFORMATION CALL: 1-800-334-5551, (IN NC CALL 1-800-632-1231)

SYNONYMS: NONE KNOWN

DATE: JUNE 5, 1992

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

PRINCIPAL HAZARDOUS COMPONENTS (%):

CUPRIC SULFATE, 5-HYDRATE (CAS# 7758-99-8, RTECS#-GL8900000) 1.7%

ETHYLENE GLYCOL (CAS# 107-21-1, RTECS# KW2975000) 9.3%

SODIUM HYDROXIDE (CAS# 1310-73-2, RTECS# WB4900000) 16.7%

WATER (CAS# 7732-18-5, RTECS# ZC0110000) 72.3%

TLV (UNITS): CUPRIC SULFATE, 5-HYDRATE-TLV 1 -1MG/M3 (DUST/MIST AS CU),

PEL (OSHA-TWA)-1 MG/M3 (DUST/MIST AS CU)

ETHYLENE GLYCOL-TLV (ACGIH) - 50 PPM (CEILING), PEL (OSHA) - 50 PPM (CEILING)

SODIUM HYDROXIDE - TLV (ACGIH) - 2MG/M3 (CEILING), PEL (OSHA)- 2MG/M3 (CEILING)

SECTION III - PHYSICAL DATA

MELTING POINT (DEGREES C): NO INFORMATION AVAILABLE

BOILING POINT (DEGREES C): NO INFORMATION AVAILABLE

VAPOR PRESSURE (MM HG): NO INFORMATION AVAILABLE.

VAPOR DENSITY (AIR=1): NO INFORMATION AVAILABLE

SPECIFIC GRAVITY (H2O=1): NO INFORMATION AVAILABLE

PERCENT VOLATILE BY VOLUME: NO INFORMATION AVAILABLE

EVAPORATION RATE: (WATER=1): NO INFORMATION AVAILABLE

SOLUBILITY IN WATER: COMPLETELY SOLUBLE, PRODUCT IS AN AQUEOUS SOLUTION.

APPEARANCE AND ODOR: CLEAR, BLUE SOLUTION WITH NO ODOR.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): NOT APPLICABLE

NEPA 704M RATING: NONE ASSIGNED FOR THIS PRODUCT, NEPA RATING FOR SODIUM HYDROXIDE IS 3-0-1, NEPA RATING FOR ETHYLENE GLYCOL IS 1-1-0.

EXTINGUISHER MEDIA: USE MEDIA SUITABLE TO EXTINGUISH SURROUNDING FIRE.

FLAMMABLE LIMITS IN AIR % BY VOLUME: NOT APPLICABLE

AUTOIGNITION TEMPERATURE: NO INFORMATION AVAILABLE

SPECIAL FIRE FIGHTING PROCEDURES: FIREFIGHTERS SHOULD WEAR PROTECTIVE EQUIPMENT AND NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE. THIS IS A CAUSTIC MATERIAL, AVOID CONTACT.

BIURET REAGENT

UNUSUAL FIRE AND EXPLOSION HAZARDS: THIS MATERIAL WILL NOT BURN. THIS MATERIAL WILL NOT EXPLODE.

SECTION V - TOXICITY DATA

THRESHOLD LIMIT VALUE: SEE SECTION II

TOXICITY DATA: TO THE BEST OF OUR KNOWLEDGE, THE TOXICOLOGICAL PROPERTIES OF THIS MIXTURE HAVE NOT BEEN THOROUGHLY EVALUATED. DATA LISTED IS FOR INDIVIDUAL COMPONENTS. ALL DATA FROM RTECS, 1986.
COPPER SULFATE, 5-HYDRATE-LD50 (ORAL-RAT) - 300 MG/KG
ETHYLENE GLYCOL- LD50 (ORAL-RAT) - 5010 MG/KG
SODIUM HYDROXIDE LDLD (ORAL-RABBIT) - 500 MG/KG

EFFECTS OF OVEREXPOSURE:

ACUTE: DANGER! STRONG BASE. CONTACT WITH EYES OR SKIN MAY CAUSE SEVERE BURNS. INGESTION MAY BE HARMFUL OR FATAL. INHALATION OF MISTS MAY CAUSE BURNS TO NASAL PASSAGES AND UPPER RESPIRATORY TRACT.

CHRONIC: COPPER SULFATE, 5-HYDRATE: MUTAGENIC AND REPRODUCTIVE EFFECTS CITED (RTECS, 1986). ETHYLENE GLYCOL: REPRODUCTIVE EFFECTS CITED (RTECS, 1986).

SODIUM HYDROXIDE: MUTAGENIC DATA CITED (RTECS, 1986) NO INGREDIENT OF THIS PRODUCT IS LISTED AS CAUSING CANCER BY IARC, NTP OR OSHA.

CONDITIONS AGGRAVATED BY OVEREXPOSURE: NO INFORMATION AVAILABLE.

TARGET ORGANS: SKIN, LIVER, KIDNEYS, NERVOUS SYSTEM.

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL

RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION.

EYES: FLUSH WITH WATER FOR AT LEAST FIFTEEN MINUTES, RAISING AND LOWERING UPPER AND LOWER EYELIDS OCCASIONALLY. IMMEDIATELY SEEK MEDICAL ATTENTION!

SKIN: FLUSH THOROUGHLY WITH WATER FOR 15 MINUTES. IF ANY IRRITATION DEVELOPS, IMMEDIATELY SEEK MEDICAL ATTENTION.

INGESTION: IF SWALLOWED DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION IMMEDIATELY.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID: NONE KNOWN.

INCOMPATIBILITY (MATERIALS TO AVOID): WATER REACTIVE MATERIALS, STRONG ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS: IF HEATED TO THERMAL DECOMPOSITION, THIS

MATERIAL MAY GIVE RISE TO TOXIC FUMES OF COPPER AND/OR OXIDES OF CARBON.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE KNOWN.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

BIURET REAGENT

CLEANUP PERSONNEL SHOULD WEAR PROPER PROTECTIVE CLOTHING AND EQUIPMENT. NEUTRALIZE WITH A SUITABLE WEAK ACID. WHEN PH IS NEUTRAL, ABSORB MATERIAL ON VERMICULITE OR OTHER SUITABLE ABSORBENT MATERIAL AND CONTAINERIZE FOR DISPOSAL. IF OSHA PEL IS EXCEEDED, CLEANUP PERSONNEL SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS.

WASTE DISPOSAL METHOD: DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): NONE NEEDED UNDER CONDITIONS OF USE WITH ADEQUATE VENTILATION. IF AIRBORNE CONCENTRATION EXCEEDS OSHA PEL (SEE SECTION II), WEAR SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

VENTILATION:

LOCAL EXHAUST: YES

MECHANICAL (GENERAL): YES

SPECIAL: NONE REQUIRED

OTHER: NO

PROTECTIVE GLOVES: SUITABLE GLOVES ARE REQUIRED.

EYE PROTECTION: SPLASH-PROOF CHEMICAL SAFETY GOGGLES REQUIRED. NEVER WEAR CONTACT LENSES WHEN WORKING WITH CHEMICALS.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: LAB COAT, FACE SHIELD, EYE WASH, SAFETY SHOWER.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING OR STORING: STORE TIGHTLY CLOSED IN A COOL DRY AREA SUITABLE FOR THE STORAGE OF CAUSTIC MATERIALS.

OTHER PRECAUTIONS: NONE KNOWN

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: CAS NUMBER- CHEMICAL ABSTRACTS SERVICES NUMBER, RTECS-REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (PUBLISHED BY THE NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH); TLV-THRESHOLD LIMIT VOLUME; PEL-PERMISSIBLE EXPOSURE LIMIT; TWA-TIME WEIGHTED AVERAGE, ACGIH-AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS; OSHA-OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION; PPM - PARTS PER MILLION.

Inhalation: Remove to fresh air.
Eyes: Irrigate with large amounts of water. Call a physician.
Skin: Wash with soap and water. Final rinse with 5% acetic acid of vinegar. Rinse again. Call a physician.
Ingestion: If swallowed, do not induce vomiting! Consult a physician. Gastric lavage with 5% acetic acid or vinegar followed by instillation of olive oil or demulcents.

SECTION VI REACTIVITY DATA

Stability:
 unstable:
 stable: X
Conditions to Avoid: no information available
Incompatibility (Materials to Avoid): acids, metals and flammable liquids.
Hazardous Decomposition Products: no information available
Hazardous Polymerization:
 may occur:
 will not occur: X
Conditions to Avoid: no information available

SECTION VII SPILL OR LEAK PROCEDURES

Steps to Be Taken In Case Material is Released or Spilled: Slowly neutralize with dilute hydrochloric or dilute sulfuric acid. Wipe with mop. Drain into a sewer with sufficient water.
Waste Disposal Method: Transfer into a large vessel containing water. Slowly neutralize with dilute hydrochloric or dilute sulfuric acid.
Discharge into sewer with sufficient water.

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Mists respirator (NIOSH approved)
Ventilation:
 Local Exhaust:
 Mechanical (general): X
 Special:
 Other:

Protective Gloves: Rubber
Eye Protection: splash-proof goggles and face shield; do not wear contact lenses
Other Protective Clothing or Equipment: Lab coat, rubber apron, eye wash, and safety shower

SECTION IX SPECIAL PRECAUTIONS

Precautions To Be Taken In Handling And Storing: Protect against physical damage. Store in a cool, dry place. Keep container tightly closed.
Other Precautions: Corrosive! This item is a strong caustic material. Separate from acids, metals, explosives, organic peroxides and easily combustible materials.

Approved by:

Dan Thomas

MATERIAL SAFETY DATA SHEET

84-8211

84-8213

SECTION I

Product Name: Biuret Reagent
Size: 120ml, 500ml
Chemical name: does not apply
Formula: Sodium hydroxide (30% solution)-68.96ml
 Cupric sulfate (10% solution)-20.69ml
 Ethylene glycol-10.35ml
Manufacturer: Carolina Biological Supply Company
Address: 2700 York Road
 Burlington, NC 27215
For Information on Health Hazards Call: (919) 584-0381
For Other Information Call: (919) 584-0381
Date: revised 12/4/85

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

Principal Hazardous Components (%):
 Sodium hydroxide-34%
TLV (Units): 1ppm/M3 as mist.

SECTION III PHYSICAL DATA

Boiling Point (F.): no information available
Vapor Pressure (mm Hg.): no information available
Vapor Density (Air=1): no information available
Specific Gravity (H₂O=1): no information available
Percent Volatile By Volume (%): no information available
Evaporation Rate (=1): no information available
Solubility in Water: 100%
Appearance and Odor: purple liquid

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): not combustible
Extinguisher Media: Any media suitable for extinguishing supporting fire.
Flammable Limits in Air % by Vol.: no information available
Autoignition Temperature: no information available
Special Fire Fighting Procedures: Keep containers cool by spraying with water. Use care not to splash the material.
Unusual Fire and Explosion Hazards: Not Combustible. Highly corrosive! Contact with some metals can generate hydrogen gas.

SECTION VI HEALTH HAZARD DATA

Threshold Limit Value: See Section II
Effects of Over exposure: Toxicity high via oral route. Speed is essential. Conjunctivitis, deep skin burns, irritation of respiratory tract (from mists), vomiting, abdominal pain and diarrhea.
 Acute Overexposure: no information available
 Chronic Overexposure: no information available
Emergency and First Aid Procedures: