

MATERIAL SAFETY DATA SHEET

BENEDICT'S SOLUTION, QUANTITATIVE
CAROLINA BIOLOGICAL

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

1. PRODUCT DESCRIPTION

Product Name: Benedict's Solution, Quantitative
Product Code(s): 84-7121-, 84-7123
Size: 500ml, 4 L
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:
Cupric (CAS# 7758-98-7) 1.8%
Sodium Citrate (CAS# 68-04-2) 20%
Sodium Carbonate (CAS# 497-19-8) 8.7%
Potassium Thiocyanate (CAS# 333-20-0) 12.5%
Potassium Ferrocyanide (CAS# 14459-95-1) 0.1%
TLV and PEL units:
Cupric Sulfate: ACGIH-TLV: 1 mg(Cu)/m3 OSHA-PEL: 1 mg(Cu)/m3
Sodium Citrate: No TLV (ACGIH) or PEL (OSHA) information found.
Sodium Carbonate: No TLV (ACGIH) or PEL (OSHA) information found.
Potassium Thiocyanate: No TLV (ACGIH) or PEL (OSHA) information found.
Potassium Ferrocyanide: No TLV (ACGIH) or PEL (OSHA) information found.
Distilled Water: No TLV (ACGIH) or PEL (OSHA) information found.

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 - If swallowed, if conscious, give plenty of water and induce vomiting immediately as directed by medical personnel. 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

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Flash Point(Method Used): Not Applicable
NFPA Rating (est): Health: 2
Fire: 0
Reactivity: 0

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 with full face piece operated in the pressure demand or other positive pressure mode.
Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Unusual Fire and Explosion Hazards: May emit toxic fumes when heated to decomposition

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 in a cool place away from acid and acid fumes. Do not get in eyes, on skin or on clothing. Do not breathe mist.
Other Precautions: Do not take internally. Wash thoroughly after handling.

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: Preferred
Mechanical(General): Acceptable
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: No data available.

Melting Point: No data available.

Boiling Point: Approximately 110-120C

Vapor Pressure: Not Established

Vapor Density(Air=1): Not Established

Specific Gravity(H2O=1): 1.145

Percent Volatile by Volume: Approximately 98%

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Evaporation Rate(H₂O=1): No data available.
Solubility in Water: Complete, product is an aqueous solution
Appearance and Odor: Light blue solution with no odor

10. REACTIVITY DATA

Stability: Stable
Conditions to Avoid: High temperature, excess heat.
Incompatibility(Materials to Avoid): Acids and strong oxidizers.
Hazardous Decomposition Products: Carbon dioxide, carbon monoxide,
nitrous oxides, sulfur oxides, cyanides.
Hazardous Polymerization: Will not occur

11. TOXICITY DATA

Threshold Limit Value: See Section 2
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. All data RTECS, 1986.
Cupric Sulfate: orl-rat LD50: 300 mg/kg
Sodium Citrate: No toxicity data found.
Sodium Carbonate: orl-rat LD50: 4090 mg/kg
Potassium Thiocyanate: orl-rat LD50: 854 mg/kg
Potassium Ferrocyanide: No toxicity data found.
Effects of Overexposure:
 Acute: See section 3
 Chronic:
Cupric Sulfate: Mutation data cited. Reproductive Effects data cited.
Tumorigenic data cited. Not listed as causing cancer by IARC, NTP, or
OSHA.
Sodium Citrate: No chronic effects data found. Not listed as causing
cancer by IARC, NTP, or OSHA.
Sodium Carbonate: Reproductive Effects data cited. Not listed as
causing cancer by IARC, NTP, or OSHA.
Potassium Thiocyanate: Reproductive effects data cited. Not listed as
causing cancer by IARC, NTP, or OSHA.
Potassium Ferrocyanide: No chronic effects data found. Not listed as
causing cancer by IARC, NTP, or OSHA.
Conditions Aggravated by Overexposure: No data available.
Target Organs: No data available.
Primary Route(s) of Entry: Inhalation

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

Non-regulated material

15. REGULATORY INFORMATION

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

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Product or Components	SARA EHS Sec. 302 TPQ	SARA Sec. 313 Chemicals		CERCLA Sec. 103 RQ lbs.	RCRA Sec. 261.33
		Name List	Chemical Category		
Cupric Sulfate	No	No	Copper	10	No
Sodium Citrate	No	No	No	No	No
Sodium Carbonate	No	No	No	No	No
Potassium Thiocyanate	No	No	No	No	No
Potassium Ferrocyanide	No	No	Cyanide Compounds	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 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