

BENEDICT'S SOLUTION**Company Information**

Company's Name: REAGENTS, INC. **Lab Aids**
Company's P. O. Box: 240746
Company's City: CHARLOTTE
Company's State: NC
Company's Country: US
Company's Zip Code: 28224
Company's Info Ph #: 704/554-7474, 800/732-8484
Emergencies, call CHEMTREC: 800-424-9300
Date MSDS Prepared: October 16, 2006

1. Product Identification

Synonyms: Sodium Carbonate, Anhydrous / Copper Sulfate, Pentahydrate / Sodium Citrate, Dihydrate / Deionized Water

CAS No.: See Section 2.

Molecular Weight: Not applicable to mixtures

Chemical Formula: Na_2CO_3 / $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ / $\text{HOC}(\text{COONa}) (\text{CH}_2\text{COONa})_2 \cdot 2\text{H}_2\text{O} / \text{H}_2\text{O}$

Product Codes: 2-15000, 847113

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent (w/v)	Hazardous
Sodium Carbonate, Anhydrous	497-19-8	10	Yes
Copper Sulfate, Pentahydrate	7758-99-8	1.7	Yes
Sodium Citrate, Dihydrate	6132-04-3	17	Yes
Water	7732-18-5	Remainder	No

3. Hazards Identification**Emergency Overview**

CAUTION! MAY CAUSE IRRITATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green

Potential Health Effects

Eye: Exposure to particulates or solution may cause conjunctivitis, ulceration, and corneal abnormalities.

Skin: Causes skin irritation.

Ingestion: May cause severe digestive tract irritation with abdominal pain, nausea, vomiting and diarrhea. May cause hemorrhaging of the digestive tract.

Inhalation: May cause respiratory tract irritation. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities.

Chronic: Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause liver and kidney damage. May cause reproductive and fetal effects.

4. First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention for any breathing difficulty.

Ingestion: Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention for any gastrointestinal irritation.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms occur.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention for any irritation.

5. Fire Fighting Measures

Autoignition Temperature: No information found.

Flash Point: No information found.

Explosion Limits, lower: No information found.

Explosion Limits, upper: No information found.

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. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert

material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw-dust. Do not flush to sewer!

7. Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not get on skin or in eyes. Do not ingest or inhale.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For Copper Sulfate, Pentahydrate:

-OSHA Permissible Exposure Limit (PEL): 1 mg/m³ (TWA) for copper dusts and mists as Cu

-ACGIH Threshold Limit Value (TLV): 1 mg/m³ (TWA) for copper dusts and mists as Cu

For Sodium Citrate, Dihydrate: None established.

For Sodium Carbonate: None established.

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, a Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH-Approved): Not expected to require personal respirator usage. If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-facepiece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full-face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Clear, blue solution.

Odor: Odorless.

Solubility: Completely miscible in water.

Specific Gravity: >1

pH: No information found.

% Volatiles by volume @ 21°C (70°F): No information found.

Boiling Point: No information found.

Melting Point: No information found.

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate (BuAc=1): 0.3 (water)

10. Stability and Reactivity

Chemical Stability: Stable under ordinary conditions of use and storage.

Conditions to Avoid: High temperatures, incompatible materials.

Incompatibilities with Other Materials: None reported.

Hazardous Decomposition Products: Irritating and toxic fumes and gases.

Hazardous Polymerization: Has not been reported.

11. Toxicological Information

Copper Sulfate, Pentahydrate: Oral rat LD₅₀: 300 mg/kg. Investigated as a tumorigen, mutagen.

Sodium Carbonate, Anhydrous: Oral rat LD₅₀: 4090 mg/kg; inhalation rat LC₅₀: 2300 mg/m³/2H; irritation eye rabbit: 50 mg severe; investigated as a mutagen, reproductive effector.

Sodium Citrate, Dihydrate: No LD₅₀/LC₅₀ information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Sodium Carbonate (497-19-8)	No	No	None
Cupric Sulfate (7758-98-7)	No	No	None
Sodium Citrate (68-04-2)	No	No	None
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:

For Copper Sulfate: Data for anhydrous material unless otherwise noted. When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater. When released into water, this material is not expected to biodegrade. When released into water, this material is not expected to evaporate significantly. This material is expected to significantly bioaccumulate. This material has an experimentally-determined bioconcentration factor (BCF) of greater than 100. Bioaccumulation data for copper.

For Sodium Carbonate, Anhydrous: No information found.

For Sodium Citrate, Dihydrate: No information found.

Environmental Toxicity:

For Copper Sulfate:

This material is expected to be very toxic to aquatic life. The LC₅₀/96-hour values for fish are less than 1 mg/l. The LC₅₀/72-hour values for algae are less than 1 mg/l. Toxicity data for copper.

For Sodium Carbonate, Anhydrous: No information found.

For Sodium Citrate, Dihydrate: No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA-hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not Regulated.

15. Regulatory Information

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

Ingredient	TSCA	EC	Japan	Australia
Cupric Sulfate (7758-98-7)	Yes	Yes	Yes	Yes
Sodium Carbonate (497-19-8)	Yes	Yes	Yes	Yes
Sodium Citrate (68-04-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

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

Ingredient	Korea	DSL	--Canada--	
			NDSL	Phil.
Cupric Sulfate (7758-98-7)	Yes	Yes	No	Yes
Sodium Carbonate (497-19-8)	Yes	Yes	No	Yes
Sodium Citrate (68-04-2)	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.
Cupric Sulfate (7758-98-7)	No	No	No	Copper compo
Sodium Carbonate (497-19-8)	No	No	No	No
Sodium Citrate (68-04-2)	No	No	No	No
Water (7732-18-5)	No	No	No	No

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

Ingredient	-RCRA-		-TSCA-
	CERCLA	261.33	8 (d)
Cupric Sulfate (7758-98-7)	10	No	No
Sodium Carbonate (497-19-8)	No	No	No
Sodium Citrate (68-04-2)	No	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No TSCA 12 (b): No CDTA: No

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No

Reactivity: No (Pure / Liquid)

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: 1 Flammability: 0 Reactivity: 0

Label Hazard Warning:

CAUTION! MAY CAUSE IRRITATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

Label Precautions:

Avoid breathing mist.

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Keep container closed.

Use with adequate ventilation.

Label First Aid: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use: Laboratory Reagent.

Disclaimer:

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