

# Material Safety Data Sheet

## Benedict Quantitative Solution

ACC# 02565

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Benedict Quantitative Solution**Catalog Numbers:** S79914, S79914-1, S79914-2**Synonyms:** None**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7732-18-5	Water	60.5	231-791-2
6132-04-3	Trisodium citrate dihydrate	17	unlisted
333-20-0	Potassium thiocyanate	11	206-370-1
5968-11-6	Sodium carbonate monohydrate	10	unlisted
7758-99-8	Copper (ii) sulfate pentahydrate	1.4	unlisted

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: Clear liquid.

**Warning!** Causes severe eye irritation. Causes respiratory tract irritation. Causes skin irritation. May cause liver and kidney damage. This substance has caused adverse reproductive and fetal effects in animals.**Target Organs:** Kidneys, liver.**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.

### Section 4 - First Aid Measures

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

**Antidote:** No specific antidote exists.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** Not published.

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

## Section 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.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Water	none listed	none listed	none listed
Trisodium citrate dihydrate	none listed	none listed	none listed
Potassium thiocyanate	none listed	none listed	5 mg/m <sup>3</sup> TWA (listed under Cyanide anion).
Sodium carbonate monohydrate	none listed	none listed	none listed
Copper (ii) sulfate pentahydrate	none listed	1 mg/m <sup>3</sup> TWA (as Cu, except Copper fume) (listed	none listed

		under Copper compounds, n.o.s.).	
Sodium carbonate anhydrous	none listed	none listed	none listed

**OSHA Vacated PELs:** Water: No OSHA Vacated PELs are listed for this chemical. Trisodium citrate dihydrate: No OSHA Vacated PELs are listed for this chemical. Potassium thiocyanate: No OSHA Vacated PELs are listed for this chemical. Sodium carbonate monohydrate: No OSHA Vacated PELs are listed for this chemical. Copper (ii) sulfate pentahydrate: No OSHA Vacated PELs are listed for this chemical. Sodium carbonate anhydrous: No OSHA Vacated PELs are listed for this chemical.

#### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear natural rubber gloves, apron, and/or clothing.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** Clear

**Odor:** none reported

**pH:** Not available.

**Vapor Pressure:** Not available.

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 100 deg C

**Freezing/Melting Point:** Not available.

**Decomposition Temperature:** Not available.

**Solubility:** Completely soluble in water.

**Specific Gravity/Density:** 1.2

**Molecular Formula:** Mixture

**Molecular Weight:** Not available.

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable.

**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.

## Section 11 - Toxicological Information

#### RTECS#:

**CAS#** 7732-18-5: ZC0110000

**CAS#** 6132-04-3 unlisted.

**CAS#** 333-20-0: XL1925000

**CAS#** 5968-11-6 unlisted.

**CAS#** 7758-99-8: GL8900000

**CAS# 497-19-8:** VZ4050000

**LD50/LC50:**

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

CAS# 6132-04-3:

CAS# 333-20-0:

Oral, mouse: LD50 = 594 mg/kg;

Oral, mouse: LD50 = 590 mg/kg;

Oral, rat: LD50 = 854 mg/kg;

CAS# 5968-11-6:

CAS# 7758-99-8:

Oral, mouse: LD50 = 43 mg/kg;

Oral, rat: LD50 = 300 mg/kg;

Skin, rat: LD50 = >2 gm/kg;

CAS# 497-19-8:

Draize test, rabbit, eye: 100 mg/24H Moderate;

Draize test, rabbit, eye: 50 mg Severe;

Draize test, rabbit, skin: 500 mg/24H Mild;

Inhalation, mouse: LC50 = 1200 mg/m<sup>3</sup>/2H;

Inhalation, rat: LC50 = 2300 mg/m<sup>3</sup>/2H;

Oral, mouse: LD50 = 6600 mg/kg;

Oral, mouse: LD50 = 6600 mg/kg;

Oral, rat: LD50 = 4090 mg/kg;

**Carcinogenicity:**

CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 6132-04-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 333-20-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 5968-11-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 7758-99-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 497-19-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information available.

**Teratogenicity:** Cupric sulfate Anhydrous: Embryo or Fetus: fetotoxicity, ivn-mouse TDLo=3200 ug/kg.

Specific Developmental Abnormalities: body wall, ivn- hamster TDLo=2130 ug/kg; cardiovascular and central nervous system, ivn-mouse TDLo=3200 ug/kg.

**Reproductive Effects:** Cupric sulfatae Anhydrous: Fertility: post-implantation mortality, ivn-mouse TDLo=3200 ug/kg. Paternal Effects: spermatogenesis, itt-rat TDLo=3192 ug/kg; testes/sperm duct/epididymis, scu-mouse TDLo=12768 ug/kg.

**Mutagenicity:** Unscheduled DNA Synthesis: hamster embryo 200 umol/L Oncogenic Transformation: hamster embryo 80 umol/L

**Neurotoxicity:** No information available.

**Other Studies:**

## Section 12 - Ecological Information

No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.	No information available.
<b>Hazard Class:</b>	9	
<b>UN Number:</b>	UN3082	
<b>Packing Group:</b>	III	

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 7732-18-5 is listed on the TSCA inventory.

CAS# 6132-04-3 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 333-20-0 is listed on the TSCA inventory.

CAS# 5968-11-6 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 7758-99-8 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 497-19-8 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 333-20-0: immediate, delayed.

CAS # 5968-11-6: immediate.

CAS # 7758-99-8: immediate, delayed.

CAS # 497-19-8: immediate.

#### Section 313

This material contains Copper (ii) sulfate pentahydrate (listed as Copper compounds, n.o.s.), 1.4%, (CAS# 7758-99-8) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA. CAS# 333-20-0 is listed as a Priority Pollutant under the Clean Water Act. CAS# 333-20-0 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 7758-99-8 is listed as a Toxic Pollutant under the Clean Water Act.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 6132-04-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 333-20-0 can be found on the following state right to know lists: California, (listed as Cyanides, inorganic salts), New Jersey, (listed as Cyanide anion), New Jersey, (listed as Cyanides, inorganic salts), Pennsylvania, (listed as Cyanide anion), Massachusetts, (listed as Cyanide anion).

CAS# 5968-11-6 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7758-99-8 can be found on the following state right to know lists: California, (listed as Copper compounds, n.o.s.), New Jersey, (listed as Copper compounds, n.o.s.), Pennsylvania, (listed as Copper compounds, n.o.s.).

CAS# 497-19-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations****European Labeling in Accordance with EC Directives****Hazard Symbols:**

Not available.

**Risk Phrases:****Safety Phrases:****WGK (Water Danger/Protection)**

CAS# 7732-18-5: No information available.

CAS# 6132-04-3: 0

CAS# 333-20-0: No information available.

CAS# 5968-11-6: 1

CAS# 7758-99-8: 2

CAS# 497-19-8: 1

**Canada - DSL/NDSL**

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 333-20-0 is listed on Canada's DSL List.

CAS# 497-19-8 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 333-20-0 (listed as Cyanides, inorganic salts) is listed on the Canadian Ingredient Disclosure List.

CAS# 7758-99-8 (listed as Copper compounds, n.o.s.) is listed on the Canadian Ingredient Disclosure List.

CAS# 497-19-8 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 9/02/1997

**Revision #5 Date:** 11/06/2007

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its*

10/12/2020

<https://fscimage.fishersci.com/msds/02565.htm>

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