

Material Safety Data Sheet

Barfoed Reagent

ACC# 92416

Section 1 - Chemical Product and Company Identification

MSDS Name: Barfoed Reagent**Catalog Numbers:** S66189**Synonyms:** Glucose Test Solution**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
142-71-2	Cupric acetate	6.6	205-553-3
64-19-7	Acetic acid	1.0	200-580-7
7732-18-5	Water	Balance	231-791-2

Hazard Symbols: XN**Risk Phrases:** 22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: blue-green liquid. **Caution!** The toxicological properties of this material have not been fully investigated. May cause eye and skin irritation. May cause respiratory and digestive tract irritation. May cause reproductive and fetal effects. May cause liver and kidney damage.

Target Organs: Kidneys, liver.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation. Cupric Acetate may cause a skin allergy. If allergy develops, very low future exposure can cause itching and a skin rash.

Ingestion: May cause irritation of the digestive tract. May cause liver and kidney damage. The toxicological properties of this substance have not been fully investigated. May be harmful if swallowed.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

Chronic: Adverse reproductive effects have been reported in animals. Cupric Acetate has caused adverse reproductive effects in experimental animals.

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.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

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.

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.

Flash Point: Not available.

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

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. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

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: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Cupric acetate	none listed	none listed	none listed
Acetic acid	10 ppm TWA; 15 ppm STEL	10 ppm TWA; 25 mg/m ³ TWA 50 ppm IDLH	10 ppm TWA; 25 mg/m ³ TWA

Water

none listed

none listed

none listed

OSHA Vacated PELs: Cupric acetate: No OSHA Vacated PELs are listed for this chemical. Acetic acid: 10 ppm TWA; 25 mg/m³ TWA Water: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: blue-green

Odor: Not available.

pH: Not available.

Vapor Pressure: 14 mm Hg

Vapor Density: 0.7-water

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 212 deg F-water

Freezing/Melting Point: 32 deg F-water

Decomposition Temperature: Not available.

Solubility: Not available.

Specific Gravity/Density: 1.1

Molecular Formula: Solution

Molecular Weight: Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Excess heat.

Incompatibilities with Other Materials: Oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, oxides of copper.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 142-71-2: AG3480000

CAS# 64-19-7: AF1225000

CAS# 7732-18-5: ZC0110000

LD50/LC50:

CAS# 142-71-2:

Oral, mouse: LD50 = 196 mg/kg;

Oral, rat: LD50 = 501 mg/kg;

CAS# 64-19-7:

Draize test, rabbit, skin: 50 mg/24H Mild;
 Inhalation, mouse: LC50 = 5620 ppm/1H;
 Oral, rat: LD50 = 3310 mg/kg;
 Skin, rabbit: LD50 = 1060 uL/kg;
 CAS# 7732-18-5:
 Oral, rat: LD50 = >90 mL/kg;

Carcinogenicity:

CAS# 142-71-2: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 64-19-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7732-18-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Other Studies: See actual entry in RTECS for complete information.

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	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	No information available.				No information available.
Hazard Class:					
UN Number:					
Packing Group:					

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 142-71-2 is listed on the TSCA inventory.

CAS# 64-19-7 is listed on the TSCA inventory.

CAS# 7732-18-5 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.

SARA

CERCLA Hazardous Substances and corresponding RQs

CAS# 142-71-2: 100 lb final RQ; 45.4 kg final RQ CAS# 64-19-7: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 142-71-2: acute, chronic. CAS # 64-19-7: acute, chronic, flammable.

Section 313

This material contains Cupric acetate (listed as Copper), 6 6%, (CAS# 142-71-2) 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:

CAS# 142-71-2 is listed as a Hazardous Substance under the CWA. CAS# 64-19-7 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

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

STATE

CAS# 142-71-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 64-19-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

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

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:

XN

Risk Phrases:

R 22 Harmful if swallowed.

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)

CAS# 142-71-2: 2

CAS# 64-19-7: 1

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

Canada - DSL/NDSL

CAS# 142-71-2 is listed on Canada's DSL List.

CAS# 64-19-7 is listed on Canada's DSL List.

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

Canada - WHMIS

This product has a WHMIS classification of D1B, D2A.

Canadian Ingredient Disclosure List

CAS# 142-71-2 (listed as Copper) is listed on the Canadian Ingredient Disclosure List.

CAS# 64-19-7 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits

CAS# 142-71-2: OEL-ARAB Republic of Egypt:TWA 0.1 mg(Cu)/m³ (fume)

OEL-AUSTRALIA:TWA 0.2 mg(Cu)/m3 (fume) OEL-AUSTRALIA:TWA 1 mg(Cu)/m3 (dust) OEL-BELGIUM:TWA 0.2 mg(Cu)/m3 (fume) OEL-BELGIUM:TWA 1 mg(Cu)/m3 (dust) OEL-DENMARK:TWA 0.1 mg(Cu)/m3 (fume) OEL-DENMARK:TWA 1 mg(Cu)/m3 (dust) OEL-FINLAND:TWA 0.2 mg(Cu)/m3 (fume) OEL-FINLAND:TWA 1 mg(Cu)/m3 (dust) OEL-FINLAND:TWA 1 mg(Cu)/m3 (dust) OEL-FRANCE:TWA 0.2 mg(Cu)/m3 (fume) OEL-FRANCE:TWA 1 mg(Cu)/m3;STEL 2 mg(Cu)/m3 (dust) OEL-GERMANY:TWA 0.1 mg(Cu)/m3 (fume) OEL-GERMANY:TWA 1 mg(Cu)/m3 OEL-GERMANY:TWA 1 mg(Cu)/m3 (dust) OEL-HUNGARY:TWA 0.2 mg(Cu)/m3;STEL 0.4 mg(Cu)/m3 (dust) OEL-INDIA:TWA 0.2 mg(Cu)/m3 (fume) OEL-THE NETHERLANDS:TWA 0.2 mg(Cu)/m3 (fume) OEL-THE NETHERLANDS:TWA 1 mg(Cu)/m3 (dust) OEL-THE PHILIPPINES:TWA 1.0 mg(Cu)/m3 (fume) JAN9 OEL-POLAND:TWA 0.1 mg(Cu)/m3 (fume) OEL-RUSSIA:STEL 0.5 ppm (1 mg(Cu)/m3) (dust) JAN9 OEL-SWEDEN:TWA 0.2 mg(Cu)/m3 (resp. dust) OEL-SWEDEN:TWA 0.2 mg(Cu)/m3 (fume) OEL-SWEDEN:TWA 1 mg(Cu)/m3 (total dust) OEL-SWITZERLAND:TWA 0.1 mg(Cu)/m3;STEL 0.2 mg(Cu)/m3 (fume) OEL-SWITZERLAND:TWA 1 mg(Cu)/m3;STEL 1 mg(Cu)/m3 OEL-THAILAND:TWA 0.1 mg(Cu)/m3 (fume) OEL-THAILAND:TWA 1 mg(Cu)/m3 OEL-U

CAS# 64-19-7: OEL-AUSTRALIA:TWA 10 ppm (25 mg/m3);STEL 15 ppm (37 mg/m3) OEL-AUSTRIA:TWA 10 ppm (25 mg/m3) OEL-BELGIUM:TWA 10 ppm (25 mg/m3);STEL 15 ppm (37 mg/m3) OEL-CZECHOSLOVAKIA:TWA 25 mg/m3;STEL 50 mg/m3 OEL-DENMARK:TWA 10 ppm (25 mg/m3) OEL-FINLAND:TWA 10 ppm (25 mg/m3);STEL 15 ppm (37 mg/m3);Skin OEL-FRANCE:STEL 10 ppm (25 mg/m3) OEL-GERMANY:TWA 10 ppm (25 mg/m3) OEL-HUNGARY:TWA 10 mg/m3;STEL 20 mg/m3 OEL-INDIA:TWA 10 ppm (25 mg/m3);STEL 15 ppm (37 mg/m3) OEL-JAPAN:TWA 10 ppm (25 mg/m3) OEL-THE NETHERLANDS:TWA 10 ppm (25 mg/m3) OEL-THE PHILIPPINES:TWA 10 ppm (25 mg/m3) OEL-POLAND:TWA 5 mg/m3 OEL-RUSSIA:TWA 10 ppm;STEL 5 mg/m3;Skin OEL-SWEDEN:TWA 10 ppm (25 mg/m3);STEL 15 ppm (35 mg/m3) OEL-SWITZERLAND:TWA 10 ppm (25 mg/m3);STEL 20 ppm (50 mg/m3) OEL-THAILAND:TWA 10 ppm (25 mg/m3) OEL-TURKEY:TWA 10 ppm (25 mg/m3) OEL-UNITED KINGDOM:TWA 10 ppm (25 mg/m3);STEL 15 ppm (35 mg/m3) OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 9/25/2002

Revision #1 Date: 9/25/2002

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