



Be Right™

SAFETY DATA SHEET

Issue Date 25-Jun-2018

Revision Date
28-May-2020

Version 2.7

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1. IDENTIFICATION

Product identifier

Product Name Copper Standard Solution 10 mg/l as Cu

Other means of identification

Product Code(s) 12932

Safety data sheet number M00412

Recommended use of the chemical and restrictions on use

Recommended Use Standard solution.

Uses advised against None.

Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address

Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number

+1(303) 623-5716 - 24 Hour Service

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word

None

Hazard statements

The product contains no substances which at their given concentration, are considered to be hazardous to health

Other Hazards Known

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Chemical name	CAS No.	Percent Range	HMRIC #
Cupric nitrate	3251-23-8	<0.01%	-
Sulfuric acid	7664-93-9	<0.01%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice	No hazards which require special first aid measures. Use first aid treatment according to the nature of the injury.
Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11 for additional Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	Caution: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	No information available.
Hazardous combustion products	This material will not burn.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and

guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Cupric nitrate CAS#: 3251-23-8	TWA: 1 mg/m ³ Cu dust and mist	NDF	IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist
Sulfuric acid CAS#: 7664-93-9	TWA: 0.2 mg/m ³ thoracic particulate matter	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 15 mg/m ³ TWA: 1 mg/m ³

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

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Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection No special protective equipment required.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid
Appearance aqueous solution
Color Colorless to light blue
Odor None
Odor threshold No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	3.5	
Melting point/freezing point	~ 0 °C / 32 °F	
Boiling point / boiling range	~ 100 °C / 212 °F	
Evaporation rate	0.75 (water = 1)	
Vapor pressure	23.777 mm Hg / 3.17 kPa at 25 °C / 77 °F	
Vapor density (air = 1)	0.62 (Air = 1)	
Specific gravity (water = 1 / air = 1)	0.989	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Kinematic viscosity	No data available	

Solubility(ies)

Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

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Other Information

Metal Corrosivity

Steel Corrosion Rate
Aluminum Corrosion Rate

No data available
No data available

Volatile Organic Compounds (VOC) Content

See ingredients information below

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Cupric nitrate	3251-23-8	No data available	-
Sulfuric acid	7664-93-9	No data available	-

Explosive properties

Upper explosion limit
Lower explosion limit

No data available
No data available

Flammable properties

Flash point

No data available

Flammability Limit in Air

Upper flammability limit
Lower flammability limit

No data available
No data available

Oxidizing properties

No data available.

Bulk density

No data available

10. STABILITY AND REACTIVITY

Reactivity

Not applicable.

Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

None under normal processing.

Conditions to avoid

None known based on information supplied.

Incompatible materials

Strong oxidizing agents, strong acids, and strong bases.

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Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation No known effect based on information supplied.

Eye contact No known effect based on information supplied.

Skin contact No known effect based on information supplied.

Ingestion No known effect based on information supplied.

Symptoms No information available.

Acute toxicity

Based on available data, the classification criteria are not met

Product Acute Toxicity Data

No data available.

Ingredient Acute Toxicity Data

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cupric nitrate (<0.01%) CAS#: 3251-23-8	Rat LD ₅₀	794 mg/kg	None reported	None reported	ERMA (New Zealand's Environmental Risk Management Authority)

Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

No data available.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Cupric nitrate (<0.01%)	Rinse Test	Rabbit	100 mg	4 seconds	Skin irritant	ERMA (New Zealand's Environmental Risk Management Authority)

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CAS#: 3251-23-8						Management Authority)
Sulfuric acid (<0.01%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB (Hazardous Substances Data Bank)

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

No data available.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Cupric nitrate (<0.01%) CAS#: 3251-23-8	Standard Draize Test	Rabbit	100 mg	None reported	Corrosive to eyes	ERMA (New Zealand's Environmental Risk Management Authority)
Sulfuric acid (<0.01%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB (Hazardous Substances Data Bank)

Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

Product Sensitization Data

No data available.

Ingredient Sensitization Data

No data available.

STOT - single exposure

Based on available data, the classification criteria are not met.

Product Specific Target Organ Toxicity Single Exposure Data

No data available.

Ingredient Specific Target Organ Toxicity Single Exposure Data

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (<0.01%) CAS#: 7664-93-9	Human TD _{Lo}	0.144 mg/L	5 minutes	Lungs, Thorax, or Respiration Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Product Specific Target Organ Toxicity Repeat Dose Data

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (<0.01%)	Human TC _{Lo}	0.003 mg/L	168 days	Musculoskeletal Changes in teeth and	RTECS (Registry of Toxic Effects of Chemical

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CAS#: 7664-93-9				supporting structures	Substances)
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Carcinogenicity

Based on available data, the classification criteria are not met.

Product Carcinogenicity Data

No data available.

Ingredient Carcinogenicity Data

No data available.

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Cupric nitrate	3251-23-8	-	Group 2A	-	X
Sulfuric acid	7664-93-9	A2	Group 1	Known	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

No data available.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Cupric nitrate (<0.01%) CAS#: 3251-23-8	Cytogenetic analysis	Rat ascites tumor	600 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Sulfuric acid (<0.01%) CAS#: 7664-93-9	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available

Product Germ Cell Mutagenicity *invivo* Data

No data available.

Ingredient Germ Cell Mutagenicity *invivo* Data

No data available.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Product Reproductive Toxicity Data

No data available.

Ingredient Reproductive Toxicity Data

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (<0.01%)	Rabbit TC _{Lo}	0.02 mg/L	7 hours	Specific Developmental Abnormalities	RTECS (Registry of Toxic Effects of Chemical

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CAS#: 7664-93-9				Musculoskeletal system	Substances)
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Aspiration hazard

Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Unknown aquatic toxicity

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Product Ecological Data

Aquatic Acute Toxicity

No data available.

Aquatic Chronic Toxicity

No data available.

Ingredient Ecological Data

Aquatic Acute Toxicity

No data available.

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cupric nitrate (<0.01%) CAS#: 3251-23-8	48 Hours	<i>Ceriodaphnia dubia</i>	LC ₅₀	0.0095 mg/L	ERMA (New Zealand's Environmental Risk Management Authority)

Aquatic Chronic Toxicity

No data available.

Persistence and degradability

Product Biodegradability Data

No data available.

Bioaccumulation

Product Bioaccumulation Data

No data available.

Partition Coefficient (n-octanol/water)

Not applicable

Mobility

Soil Organic Carbon-Water Partition Coefficient

Not applicable

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging

Do not reuse empty containers.

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Special instructions for disposal Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain. Flush system with plenty of water.

14. TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG	Not regulated

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
Existing substances	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
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Cupric nitrate (CAS #: 3251-23-8)	1.0
Sulfuric acid (CAS #: 7664-93-9)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Cupric nitrate 3251-23-8	100 lb	X	-	X
Sulfuric acid 7664-93-9	1000 lb	-	-	X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Cupric nitrate 3251-23-8	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ
Sulfuric acid 7664-93-9	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

U.S. - DEA (Drug Enforcement Administration) List I & List II

Chemical name	U.S. - DEA (Drug Enforcement Administration) - List I or Precursor Chemicals	U.S. - DEA (Drug Enforcement Administration) - List II or Essential Chemicals
Sulfuric acid (<0.01%) CAS#: 7664-93-9	Not Listed	50 gallon Export Volume (exports, transshipments and international transactions to designated countries given in 1310.08(b))

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Sulfuric acid (CAS #: 7664-93-9)	Carcinogen



WARNING: This product can expose you to chemicals including Sulfuric acid, which is known to the State of California to cause cancer.

For more information, go to <http://www.P65Warnings.ca.gov>

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania
Cupric nitrate	X	X	X

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3251-23-8			
Sulfuric acid 7664-93-9	X	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Sulfuric acid	180.0910	21 CFR 184.1095

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

Additional information

Global Automotive Declarable Substance List (GADSL)

Not applicable

NFPA and HMIS Classifications

NFPA	Health hazards - 0	Flammability - 0	Instability - 0	Physical and chemical properties -
HMIS	Health hazards - 0	Flammability - 0	Physical hazards - 0	Personal protection - X

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH *Immediately Dangerous to Life or Health*
ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
NDF *no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

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Revision Note None

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Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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End of Safety Data Sheet