

FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL:	1-800-654-6911 (OUTSIDE USA: 1-423-780-2970)
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC@:	1-800-424-9300 (OUTSIDE USA: 1-703-527-3887)
FOR ALL SDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS (OUTSIDE USA: 1-423-780-2347)

PRODUCT NAME: **AB BRAND COPPER SULFATE CRYSTALS**

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Supplier Applied Biochemists (WI) W175 N11163 Stonewood Drive , Suite 234 Germantown, WI, 53022 USA	REVISION DATE: 05/26/2015 SUPERCEDES: 02/03/2011
Telephone: +12622554449 Telefax: +12622554449 Web: www.appliedbiochemists.com	MSDS Number: 000000024523 SYNONYMS: CHEMICAL FAMILY: None DESCRIPTION / USE: None established FORMULA: None established



Manufacturer
Advantis Technologies
1200 Bluegrass Lakes Parkway
Alpharetta, GA 30004
United States of America

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral)	:	Category 3
Skin irritation	:	Category 2
Eye irritation	:	Category 2A
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system)

GHS Label element

Hazard pictograms	:	 
Signal word	:	Danger
Hazard statements	:	H301 Toxic if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation.
Precautionary statements	:	Prevention: P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear eye protection/ face protection. P280 Wear protective gloves. Response: P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332 + P313 If skin irritation occurs: Get medical advice/ attention. P337 + P313 If eye irritation persists: Get medical advice/ attention. P362 Take off contaminated clothing and wash before reuse. Storage: P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up. Disposal: P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>CAS OR CHEMICAL NAME</u>	<u>CAS #</u>	<u>% RANGE</u>
Copper Sulfate pentahydrate	7758-99-8	99 - 100

SECTION 4. FIRST AID MEASURES

General Advice:	Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency Action Network at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Inhalation:	IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
Skin Contact:	IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Eye Contact:	IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Ingestion:	IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

SECTION 5. FIREFIGHTING MEASURES

Flammability Summary (OSHA):	Product is not known to be flammable, combustible, pyrophoric or explosive.
<u>Flammable Properties</u>	
Fire / Explosion Hazards:	Material will not ignite or burn.
Extinguishing Media:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire Fighting Instructions:	Use water spray to cool unopened containers. In case of fire, use normal fire-fighting equipment and the personal protective equipment recommended in Section 8 to include a NIOSH approved self-contained breathing apparatus.
Hazardous Combustion Products:	During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations:	Use the personal protective equipment recommended in Section 8 and a NIOSH approved self-contained breathing apparatus.
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Spill Mitigation Procedures

Air Release:	Keep people away from and upwind of spill/leak.
Water Release:	If the product contaminates rivers and lakes or drains inform respective authorities.
Land Release:	Sweep up and shovel into suitable containers for disposal. Avoid creating dust.
Additional Spill Information :	Prevent further leakage or spillage if safe to do so. Use personal protective equipment as required. Evacuate personnel to safe areas.

SECTION 7. HANDLING AND STORAGE

Handling:	Do not take internally. Avoid contact with skin, eyes and clothing. If in eyes or on skin, rinse well with water. Avoid breathing dust.
Storage:	Store in a cool, dry and well ventilated place. Isolate from incompatible materials.
Incompatible Materials for Storage:	Refer to Section 10, "Incompatible Materials."

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation:	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep airborne exposures below the TLV, PEL or other recommended exposure limit.
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Protective Equipment for Routine Use of Product

Respiratory Protection :	Wear a NIOSH approved respirator if levels above the exposure limits are possible., NIOSH approved half-face air purifying respirator with an N95 filter. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.
Skin Protection :	Avoid contact with skin. Impervious gloves
Eye Protection:	Chemical resistant goggles must be worn.
Protective Clothing Type:	impervious clothing
General Protective Measures:	Ensure that eyewash stations and safety showers are close to the workstation location.

Components with workplace control parameters

no data available

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	solid
Form	No data.
Color:	No data.
Odor:	No data.
Molecular Weight:	249.68 g/mol
pH :	3.7 - 4.2
	() 100 g/l (as aqueous solution)

Boiling Point:	1,040 °F (560 °C)
Melting point/freezing point	302 °F (150 °C)
Density	no data available
Bulk Density:	() no data available
Vapor Pressure:	26.7 hPa 72.5 °F (22.5 °C)
Vapor Density:	8.6
Viscosity:	no data available
Solubility in Water:	316 g/l 32 °F (0 °C)
Partition coefficient n-octanol/water:	No data
Evaporation Rate:	Not applicable
Oxidizing:	None established
Volatiles, % by vol.:	no data available
VOC Content	no data available This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489). This product does not contain any VOC exemptions listed under the U.S. Clean Air Act Section 450.
HAP Content	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions.
Conditions to Avoid:	Heat, Exposure to air.
Chemical Incompatibility:	Strong bases, Reducing agents, alkalis, acetylene, nitromethane, Metals, Oxidizing agents
Hazardous Decomposition Products:	Sulphur oxides, Copper oxides
Decomposition Temperature:	No data

SECTION 11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value:

Copper Sulfate LD50 = 300 mg/kg Rat
pentahydrate

Component Animal Toxicology

Dermal LD50 value:

Copper Sulfate LD50 >= 1,000 mg/kg Rabbit
pentahydrate

Component Animal ToxicologyInhalation LC50 value:

Copper Sulfate no data available
pentahydrate

Product Animal Toxicity

Oral LD50 value: LD50 = 300 mg/kg Rat

Dermal LD50 value: LD50 >= 1,000 mg/kg Rabbit

Inhalation LC50 no data available

value:

Skin Irritation: Moderate skin irritant

Eye Irritation: Moderate eye irritant

Skin Sensitization: Not believed to be sensitising to skin.

Acute Toxicity: May cause skin, eye and mucous membrane irritation (includes upper respiratory tract). Ingestion may cause gastrointestinal discomfort.

Subchronic / Chronic Toxicity: Prolonged or repeated exposure may cause kidney, liver and blood damage., Chronic exposure may cause dermatitis.

Reproductive and Developmental Toxicity: Not known or reported to cause reproductive or developmental toxicity.

Mutagenicity: Not known or reported to be mutagenic.

Copper Sulfate pentahydrate

Copper sulfate has been tested for mutagenicity, and there is equivocal evidence for its mutagenic potential. It was found to be negative in the Ames assay and in a yeast assay. It was found to be positive in the in vitro Syrian hamster embryo (SA7/SHE) cell transformation assay.

Carcinogenicity: This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

SECTION 12. ECOLOGICAL INFORMATION

Overview: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Ecological Toxicity Values for: Copper Sulfate pentahydrate

Bluegill	- (measured, renewal) 96 h LC50 = 0.892 mg/l
Bluegill	- (static). 96 h LC50 = 1.3 - 2.8 mg/l
Rainbow trout (Oncorhynchus mykiss)	- (static). 96 h LC50 = 0.13 mg/l
Blue crab (Callinectes sapidus)	- (static). 96 h LC50= 28 mg/l
Northern pink shrimp (Penaeus duorarum)	- (static). 96 h LC50= 16 mg/l
Marsh grass shrimp	- (static). 96 h LC50= 17 mg/l

- Green algae (*Selenastrum capricornutum*), - (static). 5 day EC50 (population growth) = 0.0031 mg/l
 Anabaena flos-aquae (freshwater blue-green algae) - (static). 5 day EC50 (population growth) = 0.029 mg/l
 Skeletonema costatum (diatom) - (static). 5 day EC50 (population growth) = 0.25 mg/l

SECTION 13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary : If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. As a nonhazardous solid waste it should be disposed of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION

DOT

UN number : 3077
 Description of the goods : Environmentally hazardous substances, solid, n.o.s.
 : (Copper Sulfate pentahydrate)
 Class : 9
 Packing group : III
 Labels : 9
 Emergency Response : 171
 Guidebook Number

TDG

UN number : 3077
 Description of the goods : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
 N.O.S.
 (Copper Sulfate pentahydrate)
 Class : 9
 Packing group : III
 Labels : 9

IATA

UN number : 3077
 Description of the goods : Environmentally hazardous substance, solid, n.o.s.
 (Copper Sulfate pentahydrate)
 Class : 9
 Packing group : III
 Labels : 9MI
 Packing instruction (cargo aircraft) : 956
 Packing instruction (passenger aircraft) : 956
 Packing instruction (passenger aircraft) : Y956

IMDG-CODE

UN number : 3077
 Description of the goods : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
 N.O.S.
 (Copper Sulfate pentahydrate)
 Class : 9
 Packing group : III
 Labels : 9
 EmS Number 1 : F-A
 EmS Number 2 : S-F
 Marine pollutant : yes

SECTION 15. REGULATORY INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.

Signal word : DANGER!
 Hazard statements : Causes substantial but temporary eye injury.
 Harmful if absorbed through skin.
 Corrosive. Causes irreversible eye damage.
 This pesticide is toxic to fish.
 This pesticide is toxic to aquatic invertebrates.

EPCRA - Emergency Planning and Community Right-to-Know Act**CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Copper Sulfate pentahydrate	7758-99-8		10
Copper Sulfate pentahydrate	7758-99-8	10	10

SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Copper Sulfate pentahydrate	7758-99-8
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Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Copper Sulfate pentahydrate	7758-99-8	100 %
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Copper Sulfate pentahydrate	7758-99-8	100 %
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This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Copper Sulfate pentahydrate	7758-99-8	100 %
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US State Regulations

Massachusetts Right To Know

Copper Sulfate pentahydrate	7758-99-8
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Pennsylvania Right To Know

Copper Sulfate pentahydrate	7758-99-8
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New Jersey Right To KnowCopper Sulfate
pentahydrate

7758-99-8

California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

- TSCA : This product is regulated under the Federal Insecticide, Fungicide and Rodenticide Act. It must be used for purposes consistent with its labeling.
- : Copper Sulfate pentahydrate
- : Carbonic acid, magnesium salt (1:1), mixt. with magnesium hydroxide (Mg(OH)₂), hydrate

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

SECTIONS REVISED: 1
Major References : Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT. .