

SAFETY DATA SHEET

according to US Regulation 29 CFR 1910.1200 and the Canadian HPA

AB BRAND COPPER SULFATE CRYSTALS

Version 1.0

Revision Date 2019.03.19

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SECTION 1. IDENTIFICATION

Product name : AB BRAND COPPER SULFATE CRYSTALS

Manufacturer or supplier's detailsCompany : Arch Chemicals, Inc.
1200 Bluegrass Lakes Parkway
Alpharetta, GA
30004
United States of America (USA)E-mail address : sds@lonza.com
Emergency telephone number : In case of emergency call CHEMTREC US: 1-800-424-9300,
CHEMTREC WORLD-WIDE: +1-703-527-3887.**Recommended use of the chemical and restrictions on use**

Recommended use : Water treatment chemical

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 elements**

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.

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P280 Wear eye protection/ face protection.

P280 Wear protective gloves.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. 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/doctor 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

Chemical nature : Mixture

Hazardous components

Chemical name / Synonyms	CAS-No.	Concentration (% w/w)
Copper(II) sulfate pentahydrate	7758-99-8	98 - 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.

If inhaled : 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.

In case of 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.

In case of 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 poi-

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- son control center or doctor for treatment advice.
- If swallowed : 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.
- Most important symptoms and effects, both acute and delayed : None known.
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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Specific hazards during firefighting : Material will not ignite or burn.
- Further information : 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.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use the personal protective equipment recommended in Section 8 and a NIOSH approved self-contained breathing apparatus.
Prevent further leakage or spillage if safe to do so.
Use personal protective equipment as required.
Evacuate personnel to safe areas.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Sweep up and shovel into suitable containers for disposal. Do not flush into surface water or sanitary sewer system. Avoid dust formation.
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SECTION 7. HANDLING AND STORAGE

- Advice on safe 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.
The Maximum Usage Level (MUL) of this product is 4mg/L for drinking water use. The finished drinking water should be monitored to ensure that levels of copper do not exceed regulatory requirements.
- Conditions for safe storage : Store in a cool, dry and well ventilated place. Isolate from incompatible materials.

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Materials to avoid : Refer to Section 10, "Incompatible Materials."

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Copper(II) sulfate pentahydrate	7758-99-8	REL (Dust and mist.)	1 mg/m ³ (as Cu)	NIOSH/GUIDE
		TWA (Dust and mist.)	1 mg/m ³ (as Cu)	ACGIH
		(Dust and mist.)		ACGIH
		TWA (Fume.)	0.2 mg/m ³ (as Cu)	ACGIH
		(Fume.)		ACGIH
		REL (Fume.)	0.1 mg/m ³ (as Cu)	NIOSH/GUIDE

Engineering measures : 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.

Personal protective equipment

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.

Hand protection

Remarks : Avoid contact with skin. Impervious gloves

Eye protection : Chemical resistant goggles must be worn.

Skin and body protection : Impervious clothing

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Colour : no data available

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Odour	:	no data available
Odour Threshold	:	no data available
pH	:	3.7 - 4.2 Concentration: 100 g/l (as aqueous solution)
Melting point/freezing point	:	302 °F / 150 °C
Boiling point/boiling range	:	1040 °F / 560 °C
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Product is not known to be flammable, combustible, pyrophoric or explosive.
Flammability (liquids)	:	no data available
Self-ignition	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	26.7 hPa (72.5 °F / 22.5 °C)
Relative vapour density	:	8.6
Relative density	:	2.28 (60.1 °F / 15.6 °C)
Density	:	no data available
Bulk density	:	no data available
Water solubility	:	316 g/l (32 °F / 0 °C)
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	no data available
Decomposition temperature	:	no data available
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Molecular weight	:	249.68 g/mol

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Stable under normal conditions.
Conditions to avoid	:	Heat Exposure to air.

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Incompatible materials	:	Strong bases Reducing agents Alkalis acetylene nitromethane Metals Oxidizing agents
Hazardous decomposition products	:	Sulphur oxides Copper oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure :
sure

Eyes
Skin
Ingestion
Inhalation

Acute toxicity

Acute oral toxicity : LD50 (Rat): = 300 mg/kg

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : LD50 (Rabbit): >= 1,000 mg/kg

Acute toxicity (other routes of administration) :

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

Skin corrosion/irritation

Remarks: Moderate skin irritation

Serious eye damage/eye irritation

Result: Moderate eye irritation

Respiratory or skin sensitisation

Remarks: Not believed to be sensitising to skin.

Carcinogenicity

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Repeated dose toxicity

Remarks: Chronic exposure may cause dermatitis.

Further information

Remarks: no data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

Ozone-Depletion Potential : Regulation: US. EPA Clean Air Act (CAA) Section 602 Ozone-Depleting Substances (40 CFR 82, Subpt. A, App A & B)
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : If this product becomes a waste, it will be a nonhazardous waste.
As a nonhazardous solid waste it should be disposed of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION

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DOT

UN number : 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
 (Copper(II) sulfate pentahydrate)
Transport hazard class : 9
Packing group : III
 Labels : 9
 Emergency Response Guidebook : 171
 Number
Environmental hazards : yes

TDG

UN number : 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 SOLID, N.O.S.
 (Copper(II) sulfate pentahydrate)
Transport hazard class : 9
Packing group : III
 Labels : 9
Environmental hazards : yes

IATA

UN number : 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
 (Copper(II) sulfate pentahydrate)
Transport hazard class : 9
Packing group : III
 Labels : 9MI
Environmental hazards : yes

IMDG

UN number : 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
 (Copper(II) sulfate pentahydrate)
Transport hazard class : 9
Packing group : III
 Labels : 9
 EmS Number 1 : F-A
 EmS Number 2 : S-F
Environmental hazards : Marine pollutant: yes

ADR

UN number : 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 SOLID, N.O.S.
 (Copper(II) sulfate pentahydrate)
Transport hazard class : 9
Packing group : III
 Classification Code : M7
 Hazard Identification Number : 90
 Labels : 9
Environmental hazards : yes

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RID

UN number	: 3077
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) sulfate pentahydrate)
Transport hazard class	: 9
Packing group	: III
Classification Code	: M7
Hazard Identification Number	: 90
Labels	: 9
Environmental hazards	: yes
Special precautions for user	: none
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	: Not applicable

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.

EPA Registration number	: 56576-1-8959
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(II) sulfate pentahydrate	7758-99-8		10
Copper(II) sulfate pentahydrate	7758-99-8	10	10

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

See above: SECTION 2. Hazard Identification-GHS Classification

SARA 313

Components	CAS-No.	Concentration
Copper(II) sulfate pentahydrate	7758-99-8	98 - 100 %

Clean Air Act

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This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (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).

This product does not contain any VOC exemptions listed under the U.S. Clean Air Act Section 450.

Clean Water Act

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Components	CAS-No.	Component RQ (lbs)
Copper(II) sulfate pentahydrate	7758-99-8	10

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

Components	CAS-No.	Concentration
Copper(II) sulfate pentahydrate	7758-99-8	98 - 100 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Components	CAS-No.	Concentration
Copper(II) sulfate pentahydrate	7758-99-8	98 - 100 %

US State Regulations

Massachusetts Right To Know

Components	CAS-No.
Copper(II) sulfate pentahydrate	7758-99-8

Pennsylvania Right To Know

Components	CAS-No.
Copper(II) sulfate pentahydrate	7758-99-8

New Jersey Right To Know

Components	CAS-No.
Copper(II) 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.

Canadian lists

NPRI

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Components	CAS-No.
Copper(II) sulfate pentahydrate	7758-99-8

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.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH : US. ACGIH Threshold Limit Values
 NIOSH/GUIDE : US. NIOSH: Pocket Guide to Chemical Hazards

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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 Revision Date : 2019.03.19

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid

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for such material used in combination with any other materials or in any process, unless specified in the text.

Date format : yyyy/mm/dd

US / EN