



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Copper Regular Powder
 Other Identifiers: Copper Powder, Regular copper, Copper

Product Codes: CH548
 Model Code(s) for Fire Extinguishers: 571, 681
 Recommended Use: Fire extinguishant for metal fires, especially for lithium and lithium alloys; not for human or animal drug use.

Manufacturer: AMEREX CORPORATION
 Internet Address: www.amerex-fire.com
 Address: 7595 Gadsden Highway, P.O. Box 81
 Trussville, AL 35173-0081

Company Telephone: (205) 655-3271
 E-mail Address: info@amerex-fire.com
 Emergency Contacts: Chemtrec 1(800) 424-9300 or
 (703) 527-3887

Revised: March 7, 2019

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: 1 (Environment), 4 (Physical)	Danger (Aquatic)	None
Skin Corrosion/Irritation: Category 2	None	None
Skin Sensitization: Category 1A	None	Warning
Eye: Category 2B	None	Warning
STOT – Category 3 (Single Exposure- Resp); Category 1 (Single Exposure- Digestive System)	None	Warning
STOT – Category 1 (Repeated Exposure- Liver)	None	Danger
Carcinogen: Category None	None	None

GHS – Label Symbol(s):



If Pressurized: Gas Under Pressure



GHS – Signal Word(s):

Warning
Danger (Acute Toxicity – Aquatic;
STOT SE Category 1– Digestive System;

STOT RE Category 1-Liver)

Other Hazards Not Resulting in Classification: Inhalation may cause irritation to the respiratory system. Inhalation of high volumes of copper dust may cause “metal fume fever” and “vineyard sprayers disease”.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H228 229	Flammable solid. *- Pressurized container: may burst if heated.
Health	H302 315 317 320 333 335 370 373	Harmful if swallowed. Causes skin irritation May cause an allergic skin reaction. Causes eye irritation. May be harmful if inhaled May cause respiratory irritation. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.
Environmental	H410	Very toxic to aquatic life with long lasting effects
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P201 260 264 270 272 273 280	Obtain specific instructions before use. Do not breathe dust/fumes/gas/mist/vapours/spray. Wash exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321 330 363 391 301+312 302+352 304+340 305+351+338 308+311 332+313 337+313 342+311 362+364	Call a doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures). Rinse mouth. Wash contaminated clothing before reuse. Collect spillage. IF SWALLOWED: immediately call a POISON CENTER/doctor if you feel unwell. IF ON SKIN: Wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If exposed or concerned: Call a POISON CENTER/ doctor/... If exposed or concerned: Call a POISON CENTER/ doctor/... If eye irritation persists get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER/doctor/... Take off contaminated clothing and wash t before reuse.
Storage	P410+403	*- Protect from sunlight. Store in a well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %	Classification
Copper	231-159-6	01-2119480154-42	7440-50-8	>98	NA

Adverse health effects and symptoms: Irritant to the eyes, and respiratory system. Symptoms of inhalation include irritation, metallic taste, chills, nausea, and aching muscles. May cause discoloration of skin and hair, and dermatitis. Chronic exposure may cause nasal septum perforation.

Section 4. FIRST AID MEASURES

Eye Exposure: Causes irritation. Immediately irrigate eyes with water, occasionally lifting the lower and upper lids, and repeat until pain free. Remove contact lenses if present and easy to do – continue rinsing. Seek medical attention immediately.

Skin Exposure: Causes skin irritation; skin indicates redness. In case of contact, wash with plenty of soap and water. If the dust penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Seek medical attention if irritation persists.

Inhalation: May cause irritation, along with coughing, sore throat, and headache. If respiratory irritation or distress occurs, remove victim to fresh air. Seek medical attention if irritation persists.

Ingestion: Overdose symptoms includes gastrointestinal distress. Do not induce vomiting. Rinse mouth immediately. If conscious, give the victim several glasses of water. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.

Medical conditions possibly aggravated by exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema, or bronchitis. Skin contact may aggravate existing skin disease.

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties: Flammable solid
Flash Point: Not determined

Suitable Extinguishing Media:	Graphite, dry sand, ABC powder, dolomite or sodium chloride. Do not use water.
Hazardous Combustion Products:	Copper fumes and oxides can be produced during fire
<u>Explosion Data:</u>	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	No information available
Unusual fire/explosion hazards:	At high concentrations, copper powder/dust can ignite/explode in the presence of strong oxidizers.
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand. NIOSH (approved or equivalent) and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid contact with skin, eyes, and clothing. Minimize airborne dust. Wear appropriate PPE (Section 8). Provide adequate ventilation. Evacuate non-emergency personnel.
Personal Protective Equipment:	Wear PPE as specified in Section 8.
Emergency Procedures:	Evacuate non-emergency personnel.
Methods for Containment:	Prevent further leakage or spillage if safe to do so.
Methods for Clean Up:	Stop any leaks if safe to do so. Material should be collected mechanically and disposed of in suitable, properly labeled containers.
Environmental Precautions:	Prevent material from entering storm sewers or conveyances to waterways.
Other:	If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions:	Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8). Provide adequate ventilation. Avoid contact of copper with eyes, skin, and clothing. Avoid inhalation.
Conditions for Safe Storage/Handling:	Keep product in original container. Prevent falling. Do not allow near heat sources. Store away from ignition sources and heat sources.

Incompatible Products: No data available.
 Hazardous Decomposition Products: None
 Hazardous Polymerization: Will not occur.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
Copper Dust	1 mg/m ³	1 mg/m ³	1 mg/m ³ (inhalable)	NA
Copper Fume	0.1 mg/m ³	0.2 mg/m ³	0.1 (respirable)	NA

Engineering Controls: Showers
 Eyewash stations
 Ventilation systems

Personal Protective Equipment – PPE Code E:

The need for respiratory protection is not probable during short-term exposure. PPE use during production process must be independently evaluated.



Eye/Face Protection:
 Skin and Body Protection:
 Respiratory Protection:

Dust proof safety goggles
 Wear nitrile or similar gloves, and coveralls or long sleeve shirt.
 If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Use P100 respirators for limited exposure, use air-purifying respirator (APR) with high efficiency particulate air (HEPA) filters for prolonged exposure. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current safety and health requirements. The need for respiratory protection is not likely for short-term use in well ventilated areas.

Hygiene Measures:

Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Reddish metallic PWDER
Molecular Weight:	63.548 gm
Odor:	Odorless
Odor Threshold:	No information available
Decomposition Temperature °C:	No information available
Freezing Point °C:	Not applicable
Initial Boiling Point °C:	2595
Physical State:	Solid powder
pH:	Not applicable
Flash Point °C:	> 700
Autoignition Temperature °C:	Information not available
Boiling Point/Range °C:	2595
Melting Point/Range °C:	1083° C
Flammability:	Flammable (UN Test N. 1)
Flammability Limits in Air °C:	Upper, Lower-Information not available
Explosive Properties:	Not normally explosive
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Density:	8.94
Vapor Pressure:	0 mm Hg
Specific gravity:	Not Applicable
Solubility:	Insoluble in water
Partition coefficient, K _{ow}	Unknown
Viscosity:	Not Applicable

Section 10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions
Incompatibles:	Strong acids, active halogen compounds, chlorine, fluorine, iodine, bromine, ammonia. May react explosively with strong oxidizing agents.
Conditions to Avoid:	Keep away from heat sources. Minimize airborne dust generation.

Hazardous Decomposition Products: None
 Possibility of Hazardous Reactions: Risk of dust explosion

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin and eye contact.
 Symptoms:
 Immediate:
 Inhalation: Irritation, coughing, headache, labored breathing.
 Eyes: Possibly serious irritation.
 Skin: Irritation, erythema (redness).
 Ingestion: Gastrointestinal distress: pain, nausea.
 Delayed: Can take up to 48 hours for symptoms to appear.
 Acute Toxicity: Relatively non-toxic.
 Chronic Toxicity:
 Short-term Exposure: Dermatitis.
 Long-term Exposure: Repeated exposure can cause liver damage

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Copper	>2g/kg (rat)	Not classified	>10um diameter- not classified <10um diameter- 1-5 g/m ³ air (rat)

Reproductive Toxicity: This product's ingredients are not known to have reproductive or teratogenic effects.
 Target Organs and Effects (TOST- SE): Digestive system (Category 1 – Danger) Respiratory system (irritant- Category 3 - Warning).
 This product is an irritant to epithelial tissue, (eyes, mucous membranes, skin) and may aggravate dermatitis.
 Target Organs and Effects (TOST- RE): Liver, skin sensitization

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Copper	None	None	None	Cat 3 (Respiratory), Cat 1 (Digestive)	Cat 1 (Liver)	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Very toxic to aquatic life with long lasting effects
Persistence/Degradability:	Insoluble in water, not biodegradable, not persistent
Probability of rapid biodegradation:	Very low
Anaerobic biodegradation probability:	Low
Bioaccumulation potential:	Low
Bioconcentration factor:	3.162 L/kg
Bioaccumulation:	0.903 (Very low)
Mobility in soil:	Poor
Log Koc:	Est. 2.96 – 4.25
Log Koa (Koawin Model):	Est: -0.571
Log Kaw:	Est: 0.001
<u>Level III Fugacity Model:</u>	9.45% soil, 53.8% water, 0.128% sediment, 36.6% air

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (LC50)
Copper	0.017 mg/L Oncorhynchus kisutch 96h 0.11 mg/L Salmo gairdneri 28d	N/A

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	Chronic (LC50)
Copper	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8).
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	3077, Environmentally hazardous substance
UN Proper Shipping Name:	Metal Powder, Flammable
Transport Hazard Class:	NA
Packing Group:	NA
Marine Pollutant?:	YES
IATA	Not regulated
DOT DOT EXCEPTION:	RQ: 5000lbs, Environmentally hazardous substance Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars, and aircraft

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations. This transportation information covers the Copper Powder (CAS 7440-50-8) fire extinguisher agent as shipped in bulk containers and not when contained in fire extinguishers or fire extinguisher systems.

Special Precautions for Shipping:

If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – III

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	ENCS	Yes
South Korea	KECL	Yes

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Copper	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Copper	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:	Xn	Irritant
	Xi	
R Phrases:	18	In use, may form flammable/explosive vapor/air mixture
	20	Harmful by inhalation
	21/22	Harmful in contact with skin and if swallowed
	36/37/38	Irritating to eyes, respiratory system and skin
	48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed.
	52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
S Phrases:	22	Do not breath dust.
	23/24/25	Avoid inhalation and contact with skin and eyes
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36/37	Wear suitable protective clothing and gloves
	38	Where ventilation is insufficient, wear suitable respiratory equipment.
	61	Avoid release to the environment. Refer to special instructions/safety data sheet.
	62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label where possible.

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. This product is under SARA reporting requirements or has SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or is regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
*-Sudden Release of Pressure Hazard	Yes
Reactive Hazard	Yes
* - Only applicable if material is in a pressurized extinguisher.	

Clean Water/Clean Air Acts:

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) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

- Alaska** - Designated Toxic and Hazardous Substances: None
- California** – Permissible Exposure Limits for Chemical Contaminants: None
- Florida** – Substance List: None
- Illinois** – Toxic Substance List: None
- Kansas** – Section 302/303 List: None
- Massachusetts** – Substance List: Yes
- Minnesota** – List of Hazardous Substances: None
- Missouri** – Employer Information/Toxic Substance List: None
- New Jersey** – Right to Know Hazardous Substance List: None
- North Dakota** – List of Hazardous Chemicals, Reportable Quantities: None
- Pennsylvania** – Hazardous Substance List: Yes
- Rhode Island** – Hazardous Substance List: None
- Texas** – Hazardous Substance List: None
- West Virginia** – Hazardous Substance List: None
- Wisconsin** – Toxic and Hazardous Substances: None

California Proposition 65: Yes

Other:

Canada – DSL Yes

Section 16. OTHER INFORMATION

Copper Regular Powder
SDS Part Number 26932

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format. No modifications of this SDS are authorized by AMEREX Corporation. Questions or comments should be directed to AMEREX Corporation (See Section 1).

Issuing Date	26-January-2019
Revision Date	7-March-2019; Revision C
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made. Updated by William F. Garvin, CIH.