

MATERIAL SAFETY DATA SHEET (MSDS)

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Revised/May 1, 1997

REFERENCE NUMBER: OSR-MSDS 002

PRODUCT NAME: Industrial Copper Sulfate

COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE/MIXTURE:	Substance
CHEMICAL NAME:	Copper Sulfate Pentahydrate
INGREDIENTS AND COMPOSITION:	CuSO ₄ ·5H ₂ O 98.5% or more
CHEMICAL FORMULA OR STRUCTURAL FORMULA:	CuSO ₄ ·5H ₂ O
JECS NUMBER:	1-300
CAS REGISTRY NUMBER:	7758-99-8

HAZARDOUS IDENTIFICATION

CLASS NAME OF HAZARDOUS CHEMICALS: Acute toxic substance

PHYSICAL AND CHEMICAL HAZARDS: Noncombustible. Evolves fumes (SO₂) on ignition (above 600°-700 °C). Exercise caution, as the fumes are hazardous.

ADVERSE HUMAN HEALTH EFFECTS: Highly irritating to the eyes. Slightly irritating to the skin. Inhalation will cause headache, dizziness, and pupil dilatation. Ingestion of a large amount will cause vomiting, headache, and diarrhea.

ENVIRONMENTAL EFFECTS: Soluble in water.

FIRST-AID MEASURES

EYE CONTACT: Thoroughly rinse the eyes and obtain medical attention.

SKIN CONTACT: Wash the affected areas with plenty of water.

INHALATION: Have the victim blow his or her nose and gargle, and obtain medical attention.

INGESTION: Give the victim plenty of warm water and immediately obtain medical attention.

FIRE-FIGHTING MEASURES

EXTINGUISHING MEASURES: Quickly move the container to a safe area. If the container is not movable, cool it by spraying the container and the surrounding area. In the event of a major fire, extinguish it instantaneously by spraying it with water or foam.

EXTINGUISHING MEDIA: Fire extinguishers, sand, water, carbon dioxide, or foam.

ACCIDENTAL RELEASE MEASURES: Rope off the spills to avoid spreading, and quickly recover the spills using shovels or brooms. Be sure to wear protective equipment and work upwind of the spills. Neutralize the spills with an aqueous solutions of soda ash, hydrated lime, etc., and wash them away with plenty of water. Be careful to prevent discharging concentrated wastewater into rivers, etc.

HANDLING AND STORAGE

HANDLING: Protect the bags from being physically damaged or becoming wet.

Avoid scattering.

Be sure to wear protective equipment and stay upwind.

Do not use iron tools, as they are corrosible.

STORAGE: Store in a cool dry place. Post a "No entry" notice to prevent the entry unconcerned persons, and lock the storage area. Avoid getting wet and keep away from heat. Store the industrial copper sulfate away from non-poisonous or nontoxic substances.

EXPOSURE CONTROL/PERSONAL PROTECTION

CONTROL PARAMETERS: ACGIH TLV(1992) 1 mg/m³
Recommended value of the Japan Society for Occupational Health (1992)
Not established

THRESHOLD LIMIT VALUE: No information.

ENGINEERING MEASURES: Use local exhaust ventilation in the working area.

PROTECTIVE EQUIPMENT: Wear dust respirators, protective eyeglasses, impervious gloves, and protective clothing that prevents skin exposure.

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, ETC.:	Indigoblue transparent triclinic crystals
BOILING POINT:	- °C
VAPOR PRESSURE:	- Pa (°C)
MELTING POINT:	- °C
VOLATILITY:	-
SPECIFIC GRAVITY:	2.29 (16 °C)
SOLUBILITY IN WATER:	19.8 g/100 g (15 °C)

PHYSICAL HAZARD (STABILITY AND REACTIVITY)

FLASH POINT:	- °C
AUTOIGNITION TEMPERATURE:	- °C
EXPLOSION LIMIT:	Upper -%, Lower -%
FLAMMABILITY:	-
IGNITABILITY:	Spontaneous ignitability - Reactivity with water -
OXIDIZABILITY:	Shows acid reaction upon dissolution in water, and hydrolysis
SELF-REACTIVITY · EXPLOSIVENESS:	-
DUST-EXPLOSIVENESS:	-
STABILITY · REACTIVITY:	Effloresces slowly in air, producing white powder on the surface of the industrial copper sulfate.

OTHER INFORMATION:

Emits copper oxide fumes and gas upon ignition.
Exercise caution as the fumes and gas are
harmful.

TOXICOLOGICAL INFORMATION

SKIN EFFECTS: The dust may cause a rash on sweaty skin, depending upon personal constitutions.

IRRITANT PROPERTY: Irritating to the mucous membranes of the nose and throat, occasionally causing inflammation.

Very irritating to the mucous membranes of the eye.

ACUTE TOXICITY: Oral Ld 50 (rat) 960 mg/kg (pentahydrate)

Oral Ld 50 (rat) 360 mg/kg (anhydrate)

SUB-ACUTE TOXICITY: Ingestion will stimulate the gastric mucous membrane, causing vomiting.

OTHER INFORMATION: Emits copper oxide fumes upon ignition.

ECOLOGICAL INFORMATION

DEGRADABILITY: Effloresces and discolors slowly in the air.

OTHER INFORMATION: -

DISPOSAL CONSIDERATION: Dissolve in water, add aqueous solution of hydrated lime, soda ash, etc., and filter and landfill the precipitate.

Recover copper metal by reductive calcination if a large amount is to be treated.

It is recommended that disposal be entrusted to industrial waste treatment experts.

TRANSPORT INFORMATION: Protect the bags from physical damage.

Keep away from water and humidity.

REGULATORY INFORMATION: A deleterious substance of the second article of the "Poisonous and Deleterious Substances Control Law"

OTHER INFORMATION:

Instructions for handling to be labeled on 20 kg bags :

[Use gloves] [Wear masks] [Harmful to fish and shellfish]

- Do not use metal containers for dissolution.
 - When adding a diluted solution of copper sulfate to concentrated lime solution, add it slowly while agitating.
 - Do not mix copper sulfate with a lime-sulfur mixture, rosin mixture, soda mixture, malathion emulsion, machine oil emulsion, etc.
 - If accidentally ingested, give the victim plenty of warm water, salt solution, egg white, or milk, and immediately obtain medical attention.
 - As copper sulfate is a deleterious substance, store it in a locked area away from food.
 - As copper sulfate is toxic to fish (Level C), do not use it where the sprayed solution may scatter or flow into rivers, and do not apply it to a wide area all at once.
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REFERENCES: 11892 Chemical Goods (published by The Chemical Daily Co., Ltd.)