



## Safety Data Sheet

### 1. Identification of the substance/mixture and of the company/undertaking

#### Product identifier:

Product name: Copper(II)sulfate, 5-hydrate  
SDS No. : 1851E-2

#### Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.  
Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN  
Division: Safety Management Dept. of Chemicals  
Telephone number: +81-6-6946-8061  
FAX: +81-6-6946-1607  
e-mail address: kagakuhinanzenkanri@kishida.co.jp

### 2. Hazards identification

#### GHS classification and label elements of the product

#### Classification of the substance or mixture

##### HEALTH HAZARDS

Acute toxicity (Oral): Category 4  
Skin corrosion/irritation: Category 2  
Serious eye damage/eye irritation: Category 2A  
Skin sensitization: Category 1  
Germ cell mutagenicity: Category 2  
Reproductive toxicity: Category 2  
Specific target organ toxicity – single exposure: Category 1(blood system; liver; nervous system; kidney; respiratory system)  
Specific target organ toxicity – repeated exposure: Category 1(blood system; kidney; respiratory system)  
Specific target organ toxicity – repeated exposure: Category 2(liver)

##### ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Acute): Category 1  
Hazardous to the aquatic environment (Long-term): Category 1

(Note) GHS classification without description: Not classified/Classification not possible

#### Label elements



Signal word: Danger

#### HAZARD STATEMENT

Harmful if swallowed  
Causes skin irritation  
Causes serious eye irritation  
May cause an allergic skin reaction  
Suspected of causing genetic defects  
Suspected of damaging fertility or the unborn child  
Causes damage to organs after single exposure(blood system; liver; nervous system; kidney; respiratory system)  
Causes damage to organs through prolonged or repeated exposure(blood system; kidney; respiratory system)



May cause damage to organs through prolonged or repeated exposure(liver)

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects

#### PRECAUTIONARY STATEMENT

##### Prevention

Avoid release to the environment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash contaminated parts thoroughly after handling.

Wear protective gloves.

Contaminated work clothing should not be allowed out of the workplace.

Wear eye protection/face protection.

Do not eat, drink or smoke when using this product.

##### Response

Collect spillage.

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

IF exposed or concerned: Call a POISON CENTER or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

IF SWALLOWED: Rinse mouth.

##### Disposal

Dispose of contents/container in accordance with local/national regulation.

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### 3. Composition/information on ingredients

#### Mixture/Substance selection:

##### Substance

Ingredient name:Copper(II)sulfate, 5-hydrate

Content (%):99(min)

Chemical formula:CuSO<sub>4</sub>•5H<sub>2</sub>O

Chemicals No, Japan:1-300

CAS No.:7758-99-8

MW:249.69

ECNO:231-847-6

Note : The figures shown above are not the specifications of the product.

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### 4. First-aid measures

#### Descriptions of first-aid measures

##### General measures

Get medical attention/advice if you feel unwell.

##### IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

##### IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

##### IF IN EYES



Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

**IF SWALLOWED**

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.

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**5. Fire-fighting measures****Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media data is not available.

**Advice for firefighters****Specific fire-fighting measures**

Evacuate non-essential personnel to safe area.

**Special protective equipment and precautions for fire-fighters**

Wear fire/flame resistant/retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

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**6. Accidental release measures****Personnel precautions, protective equipment and emergency procedures**

Ventilate area until material pick up is complete.

Wear proper protective equipment.

**Environmental precautions**

Prevent spills from entering sewers, watercourses or low areas.

Avoid raising dust.

**Methods and materials for containment and cleaning up**

Sweep up, place in a bag and hold for waste disposal.

**Preventive measures for secondary accident**

Collect spillage.

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**7. Handling and storage****Precautions for safe handling****Preventive measures**

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

**Safety Measures**

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.

When using do not eat, drink or smoke.

**Any incompatibilities**

See "10.Stability and Reactivity"

**Advice on general occupational hygiene**

- Wash contaminated parts thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Contaminated work clothing should not be allowed out of the workplace.
- Take off contaminated clothing and wash it before reuse.

**Storage****Conditions for safe storage**

- Keep container tightly closed.
- Store in a cool, dry place. Do not store in direct sunlight.
- Keep under lock and key.

**Container and packaging materials for safe handling**

- Glass
- Polyethylene

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**8. Exposure controls/personal protection****Control parameters****Exposure controls****Appropriate engineering controls**

- Do not use in areas without adequate ventilation.
- Eye wash station should be available.
- Washing facilities should be available.

**Individual protection measures****Respiratory protection**

- Wear respiratory protection.

**Hand protection**

- Wear protective gloves.

**Eye protection**

- Wear eye/face protection.

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**9. Physical and Chemical Properties****Information on basic physical and chemical properties**

Physical state: Crystals or crystalline powder

Color: Blue

Odor: Odorless

Melting point/Freezing point: (decomposes) 110°C

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

**Solubility:**

Solubility in water: 31.7 g/100 ml (0°C)

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density: 2.3 g/cm<sup>3</sup>

Relative vapor density (Air=1) data is not available.

No Particle characteristics data is not available.



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## 10. Stability and Reactivity

### Reactivity

Not available.

### Chemical stability

Effloresce in dry air.

### Possibility of hazardous reactions

Decomposes on heating. This produces toxic and corrosive fumes including sulfur oxides. The solution in water is a weak acid. Attacks many metals in the presence of water. (ICSC 1416)

### Conditions to avoid

Contact with fire source.

### Incompatible materials

Not available.

### Hazardous decomposition products

Sulfur oxides

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Oral)

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
rat LD50=960mg/kg (EHC 200, 1998)

#### Irritant properties

##### Skin corrosion/irritation

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
human skin irritation (ICSC, 2001)

##### Serious eye damage/irritation

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
human irritation (ICSC, 2001)

#### Sensitization

##### Skin sensitization

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
cat. 1; Occupational/Environmental Allergy Society, Japan, 2004

#### Germ cell mutagenicity

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
cat. 2; ATSDR, 2004

Carcinogenic effects data is not available.

#### Reproductive toxicity

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
cat. 2; ATSDR, 2004

#### STOT

##### STOT-single exposure

###### [cat.1]

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
blood system; liver; nervous system; kidney; respiratory system (ATSDR, 2004)

##### STOT-repeated exposure



## [cat.1]

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
blood system; kidney; respiratory system (ATSDR, 2004)

## [cat.2]

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
liver (ATSDR, 2004)

Aspiration hazard data is not available.

## Additional data

May cause lung disorders by massive inhalation of powdered substance.  
-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

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**12. Ecological Information**

## Ecotoxicity

## Aquatic toxicity

Very toxic to aquatic life  
Very toxic to aquatic life with long lasting effects

## Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]  
(Copper(II)sulfate, 5-hydrate)  
Crustacea (Ceriodaphnia reticulata) LC50=0.00272mg/L/48hr (ECETOC TR91, 2003)

## Water solubility

(Copper(II)sulfate, 5-hydrate)  
31.7 g/100 ml (0°C) (ICSC, 2001)

## Persistence and degradability

Persistence and degradability data is not available.

## Bioaccumulative potential

Bioaccumulative potential data is not available.

## Mobility in soil

Mobility in soil data is not available.

## Other adverse effects

Ozone depleting chemical data is not available.

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**13. Disposal considerations**

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

## Waste treatment methods

Avoid release to the environment (- if this is not the intended use).  
Dispose of contents/container in accordance with local/national regulation.

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**14. Transport Information**

UN No.: 3077

Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class or division : 9

Packing group : III

ERG GUIDE No.: 171

Special provisions No.: 274; 331; 335; 375

IMDG Code (International Maritime Dangerous Goods Regulations)



UN No.: 3077

Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class or division : 9

Packing group : III

Special provisions No.: 274; 335; 966; 967; 969

IATA Dangerous Goods Regulations

UN No.: 3077

Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class or division : 9

Hazard labels : Miscellaneous & Environmentally hazardous

Packing group : III

Special provisions No.: A97; A158; A179; A197

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : yes

MARPOL Annex V – Prevention of pollution by garbage discharge

Specific target organ toxicity – repeated exposure: cat.1

Copper(II)sulfate, 5-hydrate

Hazardous to the aquatic environment – acute hazard: cat.1

Copper(II)sulfate, 5-hydrate

Hazardous to the aquatic environment – long-term hazard: cat.1, 2

Copper(II)sulfate, 5-hydrate

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15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal Regulations

Chemicals listed in TSCA Inventory

Copper(II)sulfate, 5-hydrate

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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16. Other information

GHS classification and labelling

Acute Tox. 4: H302 Harmful if swallowed

Skin Irrit. 2: H315 Causes skin irritation

Eye Irrit. 2A: H319 Causes serious eye irritation

Skin Sens. 1: H317 May cause an allergic skin reaction

Muta. 2: H341 Suspected of causing genetic defects

Repr. 2: H361 Suspected of damaging fertility or the unborn child

STOT SE 1: H370 Causes damage to organs after single exposure

STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

Aquatic Acute 1: H400 Very toxic to aquatic life

Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (7th revised edition, 2017), UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (61th Edition) 2020



Classification, labelling and packaging of substances and mixtures (Table 3 ECNO6182012)  
2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)  
2020 TLVs and BEIs. (ACGIH)  
<http://monographs.iarc.fr/ENG/Classification/index.php>  
Supplier's data/information

**General Disclaimer**

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2019).