

Copper(II) nitrate trihydrate,
JUNSEI CHEMICAL CO., LTD., 37510jis_J_E2-2, 29/Jul/2024

Date of issue for the 1st edition : 21/Feb/2020

Date of revision : 29/Jul/2024

Safety Data Sheet

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

Product identifier:

Product name: Copper(II) nitrate trihydrate

Reference number(SDS): 37510jis_J_E2-2

Product type:

Reagent

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the product: Research and Development

Uses advised against: Do not use for other purposes.

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

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e-mail address: shiyaku-t@junsei.co.jp

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Oxidizing solids: Category 2

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 1 (nervous system, blood system, liver, kidney)

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory organs)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 1

Hazardous to the aquatic environment, long-term (chronic): Category 1

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

Label elements



Signal word: Danger

HAZARD STATEMENT

H272–May intensify fire; oxidizer

H302–Harmful if swallowed

H314–Causes severe skin burns and eye damage

H318–Causes serious eye damage

H361–Suspected of damaging fertility or the unborn child

H370–Causes damage to organs

H335–May cause respiratory irritation

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H372-Causes damage to organs through prolonged or repeated exposure

H400-Very toxic to aquatic life

H410-Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid release to the environment.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep away from clothing and other combustible materials.

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

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

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

Use personal protective equipment as required.

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

Response

In case of fire: Use flood with water to extinguish.

Collect spillage.

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Immediately call a POISON CENTER/doctor/physician.

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

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

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash contaminated clothing before reuse.

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

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

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal

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

Specific Physical and Chemical hazards

Oxidizing material. Organic or combustible material may catch fire in contact with it.

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:Copper(II) nitrate trihydrate

Content (%):99.0 <

Chemical formula:CuN2O6·3H2O

Chemicals No, Japan:1-296

CAS No.:10031-43-3[3251-23-8(anh)]

MW:241.60

ECNO:221-838-5(anh)

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

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

- Get medical advice/attention if you feel unwell.
- Immediately call a POISON CENTER/doctor/physician.
- Keep victim warm and quiet.
- Call emergency medical service.

IF INHALED

- Remove person to fresh air and keep comfortable for breathing.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

- Take off immediately all contaminated clothing. Rinse skin with water or shower.
- If skin irritation or rash occurs: Get medical advice/attention.
- Remove and isolate contaminated clothing and shoes.

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. Do NOT induce vomiting.
- Call a POISON CENTER/doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

- Specific information on symptom and effect are unknown.

Indication of any immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

- In case of fire, use flood with water to extinguish.
- Not combustible but enhances combustion of other substances.

Unsuitable extinguishing media

- Dry chemicals, Foams

Specific hazards arising from the substance or mixture

- Containers may explode when heated.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may cause pollution.
- This product will accelerate burning when involved in a fire.

Advice for firefighters

Specific fire-fighting measures

- Evacuate non-essential personnel to safe area.
- Cool container with water spray.

Special protective equipment and precautions for fire-fighters

- Wear fire resistant or flame retardant clothing.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

- Keep unauthorized personnel away.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Ventilate area until material pick up is complete.
- Wear proper protective equipment.
- PUBLIC SAFETY: Ventilate closed spaces before entering.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions

- Avoid release to headsprings, rivers, lakes, ocean and groundwater.
- Runoff may create fire or explosion hazard.

Methods and materials for containment and cleaning up

- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Preventive measures for secondary accident

- Collect spillage.
- Stop leak if you can do it without risk.
- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Do not get water inside containers.
- Keep out of low areas.

Section 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep away from clothing and other combustible materials.

(Exhaust/ventilator)

- Exhaust/ventilator should be available.

(Safety treatments)

- Avoid contact with skin.
- Avoid contact with eyes.

Safety Measures

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Use personal protective equipment as required.
- When using do not eat, drink or smoke.
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Contaminated clothing may be a fire risk when dry.

Any incompatibilities

- Bases, Reducing agents, Combustible substances should not be mixed with the chemicals.

Advice on general occupational hygiene

- Wash contaminated parts thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wash contaminated clothing before reuse.

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Storage

Conditions for safe storage

- Store in a well-ventilated place. Keep container tightly closed.
- Keep cool. Protect from sunlight.
- Store in accordance with local/national regulation.
- Store locked up.

Container and packaging materials for safe handling

- Keep only in original packaging.

Specific end use(s)

- See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

Section 8. Exposure controls/personal protection

Control parameters

- Control value and concentration standard value are not available in ISHA.

Adopted value

- Adopted value in JSOH is not available.
- ACGIH(1990) TWA: 1mg-Cu/m³ (dust and mist)

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

- Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).
- Recommended respiratory protection: Dust mask

Hand protection

- Wear protective gloves.
- Inspect before use and replace worn or damaged gloves.
- Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.
- Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

Eye protection

- Wear chemical safety goggle.
- Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

Skin and body protection

- Wear impervious clothing and boots in case of repeated or prolonged treatment.
- Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

- Physical state: Crystals or crystalline powder
- Color: Blue
- Odor: Odorless
- Odor threshold data is not available.
- Melting point/Freezing point: 114.5°C(The apparent melting point caused by loss of crystal water)
- Boiling point or initial boiling point: 170°C
- Boiling range data is not available.
- Flammability (gases, liquids and solids) data is not available.

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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: 170°C

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH: 4.0(0.2M aqueous solution)

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 137.8g/100ml (0°C)

Solubility in solvent: Soluble in alcohol; practically insoluble in ethyl acetate.

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

Vapor pressure data is not available.

Density and/or relative density: 2.05

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

Relative density of the Vapor/air – mixture at 20°C (Air = 1) data is not available.

Particle characteristics data is not available.

Other information

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

Section 10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Deliquescence.

Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

Conditions to avoid

Contact with incompatible materials.

Heating. Moisture.

Incompatible materials

Bases, Reducing agents

Combustible substances

Hazardous decomposition products

Nitrogen oxides, Copper oxides.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 4, Harmful if swallowed

[Data for components of the product]

[GHS Cat. Japan, base data]

rat LD50=940mg/kg (EHC 200, 1998)

Acute toxicity (Dermal)

[Product]

Classification not possible (Insufficient data available or no data available).

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[Data for components of the product]

No data available.

Acute toxicity (Inhalation)

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Irritant properties

Skin corrosion/irritation

[Product]

Category 1, Causes severe skin burns and eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

in vitro test(OECD TG431); Cell viability: 53.4% (3min.exposure), 19.9% (60min.exposure),

18.2% (240min. exposure) (REACH Registration dossier, Access on Aug. 2019)

Serious eye damage/irritation

[Product]

Category 1, Causes serious eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

skin corrosion cat.1

Sensitization

Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Germ cell mutagenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

[GHS Cat. Japan, base data]

<in vivo>

No data available.

<in vitro>

Chromosome aberration test :Positive(EHC 200, 1998)

Carcinogenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Reproductive toxicity

[Product]

Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 2: Copper sulfate pentahydrate; DFGOT vol.22, 2006

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Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

Category 3, May cause respiratory irritation

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

blood system, liver, nervous system, kidneys (ATSDR, 2004; EHC 200, 1998)

[cat.3 (respiratory tract irritation)]

[GHS Cat. Japan, base data]

respiratory tract irritation (ATSDR, 2004; HSDB, Access on Aug. 2019)

STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

respiratory system (ATSDR, 2004)

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]

Category 1, Very toxic to aquatic life

Category 1, Very toxic to aquatic life with long lasting effects

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[GHS Cat. Japan, base data]

Crustacea (Ceriodaphnia reticulata) LC50=0.0095mg/L/48hr (EHC 200, 1998)

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.

Section 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.

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

Section 14. Transport Information**UN No., UN CLASS**

UN Number or ID Number : 1477
UN Proper Shipping Name : NITRATES, INORGANIC, N.O.S
Class or division (Transport hazard class) : 5.1
Packing group : II
ERG GUIDE No.: 140

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1477
UN Proper Shipping Name : NITRATES, INORGANIC, N.O.S
Class or division (Transport hazard class) : 5.1
Packing group : II

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1477
UN Proper Shipping Name : NITRATES, INORGANIC, N.O.S
Class or division (Transport hazard class) : 5.1
Hazard labels : Oxidizer
Packing group : II

Environmental hazards

Marine pollutants (yes/no) : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

MARPOL Annex V – HME (Harmful to the Marine Environment)

Specific target organ toxicity – repeated exposure: cat.1
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Hazardous to the aquatic environment – short-term (acute): cat.1
Copper(II) nitrate trihydrate
Hazardous to the aquatic environment – long-term (chronic): cat.1, 2
Copper(II) nitrate trihydrate

Section 15. Regulatory Information**Safety, health and environmental regulations/legislation specific for the substance or mixture****U.S. Toxic Substances Control Act (TSCA) Inventory**

Chemicals listed in TSCA Inventory
10031-43-3[3251-23-8(anh)]

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III**SARA 313 (TRI)**

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Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

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

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

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Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

Section 16. Other information

GHS classification and labelling

H272–Oxidising Solids, Category 2: H272 May intensify fire; oxidiser
H302–Acute toxicity, Category 4: H302 Harmful if swallowed
H314–Skin corrosion/irritation, Category 1: H314 Causes severe skin burns and eye damage
H318–Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage
H361–Reproductive toxicity, Category 2: H361 Suspected of damaging fertility or the unborn child
H370–STOT – single exposure, Category 1: H370 Causes damage to organs
H335–STOT – single exposure, Category 3, Respiratory tract irritation: H335 May cause respiratory irritation.
H372–STOT – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure
H400–Hazardous to the aquatic environment, short-term (acute), Category 1: H400 Very toxic to aquatic life
H410–Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic to aquatic life with long lasting effects

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN
IMDG Code, 2022 Edition (Incorporating Amendment 41–22)
IATA Dangerous Goods Regulations (65th Edition) 2024
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2024 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
2023 Recommendation on TLVs (JSOH)
Notification No. 0111–1 (January 11, 2022), Chemical Hazards Control Division, Industrial Safety and Health Department, Labour Standards Bureau, MHLW in Japan
Supplier's data/information
Chemicals safety data management system "GHS Assistant" Version 4.29 (<https://www.asahi-ghs.com/>)
NITE Chemical Risk Information Platform "NITE-CHRIP"
(https://www.chem-info.nite.go.jp/chem/chrip/chrip_search/systemTop)
GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

Abbreviations and acronyms

SDS (Safety Data Sheet)
LD50 (Lethal Dose, 50%)
LC50 (Lethal Concentration, 50%)
IARC (International Agency for Research on Cancer)
ACGIH (American Conference of Governmental Industrial Hygienists)
EPA (US Environmental Protection Agency)
NTP (US National Toxicology Program)
METI (Ministry of Economy, Trade and Industry in Japan)
MHLW (Ministry of Health, Labour and Welfare in Japan)
MOE (Ministry of the Environment in Japan)
JSOH (Japan Society for Occupational Health)
ISHA (Industrial Safety and Health Act in Japan)
CSCL (Chemical Substances Control Law in Japan)
EU (European Union)
EC50 (Effective Concentration, 50%)
NOEC (No Observed Effect Concentration)

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BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

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 2022).

But the data are partially changed based on our judgement.