



Safety Data Sheet

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

Product identifier:

Product name: Copper oxide ammonia solution

SDS No. : 1838E-4

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

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Corrosive to metals: Category 1

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Skin sensitization: Category 1

Specific target organ toxicity – single exposure: Category 1 (central nervous system, respiratory system)

Specific target organ toxicity – single exposure: Category 2 (systemic toxicity)

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

H290 May be corrosive to metals

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H317 May cause an allergic skin reaction

H370 Causes damage to organs (central nervous system, respiratory system)

H371 May cause damage to organs (systemic toxicity)

H410 Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

**Prevention**

- P273 Avoid release to the environment.
- P234 Keep only in original packaging.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash contaminated parts thoroughly after handling.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P270 Do not eat, drink or smoke when using this product.

Response

- P390 Absorb spillage to prevent material-damage.
- P391 Collect spillage.
- P310 Immediately call a POISON CENTER/doctor/physician.
- P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P362 + P364 Take off contaminated clothing and wash it before reuse.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P330 IF SWALLOWED: Rinse mouth.
- P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

- P405 Store locked up.

Disposal

- P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Ingredient name	Content (%)	CAS RN	ENCS	Chemical formula
Copper(II) oxide	1.5	1317-38-0	1-297	CuO
Ammonia	22-23	7664-41-7	1-391	NH3
Sucrose	≤1.1	57-50-1	-	C12H22O11
Water	74-76	7732-18-5	-	H2O

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

Note : Ammonia solution (CAS No. 1336-21-6, ECNO. 215-647-6)

Section 4. First-aid measures

Descriptions of first-aid measures

IF INHALED



Remove person to fresh air and keep comfortable for breathing.

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

IF ON SKIN

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

Wash with plenty of soap and water.

Immediately call a POISON CENTER/doctor/physician.

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.

Immediately call a POISON CENTER/doctor/physician.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Do NOT induce vomiting.

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

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

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.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Liquid: Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

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

**Preventive measures for secondary accident**

- Absorb spillage to prevent material-damage.
- Collect spillage.

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.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

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

Wash hands and contaminated parts thoroughly after handling.

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 locked up. (P405)

Store in a cool, dry place. Do not store in direct sunlight.

Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

Keep only in original packaging.

Store in a corrosion resistant/specified container with a resistant inner liner.

Use closed unbreakable containers.

Section 8. Exposure controls/personal protection**Control parameters**

Administrative Control Levels and Concentration standard value

Not established

Occupational Exposure Limit

ACGIH

(Ammonia)

TWA: 25ppm; STEL: 35ppm (Eye dam; URT irr)

(Sucrose)



TWA: 10mg/m³ (Dental erosion)

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

Recommend to use protective equipment in conformity with the standards.

Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Deep blue

Odor: Irritant odor

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability 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: Soluble

Solubility in solvent data is not available.

Partition coefficient n-octanol/water data is not available.

Vapor pressure data is not available.

Density and/or relative density: 0.92

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

Particle characteristics data is not available.

Other information

Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

**Chemical stability**

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(As Aqueous ammonia)

Reacts with many heavy metals and heavy metal salts. This produces explosive compounds. Attacks many metals. This produces flammable/explosive gas (hydrogen). It reacts violently with acids. This generates fire and explosion hazard. Decomposes on heating. This produces toxic and corrosive fumes including ammonia and nitrogen oxides. This generates toxic hazard. (ICSC 0215)

(Sucrose)

Reacts with strong oxidants. This generates fire hazard. (ICSC 1507)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Acids, Strong oxidizing agents, Heavy metals, Heavy metal salts, Metals

Hazardous decomposition products

Carbon oxides, Nitrogen oxides, Explosive compounds, Hydrogen, Ammonia, Copper compounds

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]

[NITE-CHRIP]

(Copper(II) oxide)

rat LD50: > 2000 mg/kg (OECD TG 423, GLP) (source: NITE)

(Ammonia)

rat LD50: 350 mg/kg (test substance: 48.6% Ammonia water) (source: NITE)

Acute toxicity (Dermal)

[Data for components of the product]

[NITE-CHRIP]

(Copper(II) oxide)

rat LD50: > 2000 mg/kg (OECD TG 402) (source: NITE)

Irritant properties**Skin corrosion/irritation**

[Product]

Category 1, Causes severe skin burns and eye damage

[Data for components of the product]

[NITE-CHRIP]

(Ammonia)

Category 1 (source: NITE)

Serious eye damage/irritation

[Product]

Category 1, Causes serious eye damage

[Data for components of the product]

[NITE-CHRIP]



(Ammonia)

Category 1 (source: NITE)

Sensitization

Skin sensitization

[Product]

Category 1, May cause an allergic skin reaction

[Data for components of the product]

[NITE-CHRIP]

(Copper(II) oxide)

Category 1A (source: NITE)

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]

[ACGIH]

(Sucrose)

A4: Not Classifiable as a Human Carcinogen

Reproductive toxicity data is not available.

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

Category 2, May cause damage to organs

[Data for components of the product]

[NITE-CHRIP]

(Copper(II) oxide)

Category 1 (systemic toxicity), Category 3 (Respiratory tract irritation) (source: NITE)

(Ammonia)

Category 1 (central nervous system, respiratory system) (source: NITE)

STOT-repeated exposure data is not available.

Aspiration hazard data is not 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)

[NITE-CHRIP]

(Copper(II) oxide)

Algae (*Pseudokirchneriella subcapitata*) (unknown time) LC50: 3.1 ppb (source: NITE)

(Ammonia)

Fish (*Oncorhynchus mykiss*) 96-hour LC50: 26.8 mg/L (converted value as Ammonium hydroxide)

(test substance: NH₄Cl, pH: 8.29) (source: NITE)

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

[NITE-CHRIP]

(Copper(II) oxide)

Algae (*Pseudokirchneriella subcapitata*) (unknown time) NOEC: 0.2 ppb (source: NITE)



(Ammonia)

Crustacea (*Mysidopsis bahia*) 32-day NOEC: 7.1 mg/L (converted value as Ammonium hydroxide)
(test substance: NH₄Cl, pH: 7.92-8.01) (source: NITE)

Water solubility

(Ammonia)

miscible (source: ICSC, 2018)

(Sucrose)

200 g/100 mL (25°C) (source: ICSC, 2003)

Persistence and degradability

[Data for components of the product]

(Ammonia)

Rapidly degradable (source: NITE)

Bioaccumulative potential

[Data for components of the product]

(Ammonia)

log K_{ow}: -2.66 (source: NITE)

(Sucrose)

log P_{ow}: -3.67 (source: ICSC, 2003)

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 as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 2672

UN Proper Shipping Name :

AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 ° C in water, with more than 10% but not more than 35% ammonia

Class or division (Transport hazard class) : 8

Packing group : III

ERG GUIDE No.: 154

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 2672

UN Proper Shipping Name :

AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 ° C in water, with more than 10% but not more than 35% ammonia

Class or division (Transport hazard class) : 8

Packing group : III

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 2672



UN Proper Shipping Name :

AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 ° C in water, with more than 10% but not more than 35% ammonia

Class or division (Transport hazard class) : 8

Hazard labels : Corrosive

Packing group : III

Environmental hazards

Marine pollutants (yes/no) : yes

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

Sucrose; Copper(II) oxide; Ammonia; Water

Other regulatory information

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

Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 23rd edit., 2023 UN

IMDG Code, 2024 Edition (Incorporating Amendment 42-24)

IATA Dangerous Goods Regulations (66th Edition) 2025

2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2025 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

Recommendation of occupational exposure limits (2023-2024) (JSOH)

Supplier's data/information

General Disclaimer

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Please provide SDS to customers for selling or transferring.

All chemicals have unknown hazard. Handle the product with care.

Hazards were evaluated as ammonia solution.

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 Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2023).