

Safety Data Sheet (SDS②)

SDS №

P.1

1. Identification

1-1. Name of chemical substances, etc. (product name)

Alloy name	Corresponding JIS H no.	Alloy no.	Form	Category of substance	Content of chemical composition
KALT	---	---	Tube	Single substance	As shown in the table P.3

1-2. Company information

Company name: KMCT Corporation

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Department: Quality Assurance Section

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2. Hazard Classification

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

2-1 Copper: GHS classification

Physical hazard	Explosives	Not applicable
	Flammable gas	Not applicable
	Flammable aerosol	Not applicable
	Oxidizing gas	Not applicable
	Compressed gas	Not applicable
	Flammable liquid	Not applicable
	Flammable solid	Not classifiable
	Self-reactive substances and mixture	Not applicable
	Pyrophoric liquid	Not applicable
	Pyrophoric solid	Not classifiable
	Self-heating substances and mixture	Not classifiable
	Substances and mixtures that, in contact with water, emit flammable gas	Not classifiable
	Oxidizing liquid	Not applicable
	Oxidizing solid	Not applicable
	Organic peroxide	Not applicable
	Corrosive to metal	Not classifiable
Health hazards	Acute toxicity (oral)	Not classifiable
	Acute toxicity (dermal)	Not classifiable
	Acute toxicity (inhalation: gas)	Not applicable

Acute toxicity (inhalation: vapor)	Not classifiable	
Acute toxicity (inhalation: dust)	Not classifiable	
Acute toxicity (inhalation: mist)	Not classifiable	
Skin corrosion/irritation	Not classifiable	
Serious eye damage/irritation	Not classifiable	
Respiratory sensitization	Not classifiable	
Skin sensitization	Not classifiable	
Germ cell mutagenicity	Not classifiable	
Carcinogenicity	Unclassified	
Toxic to reproduction	Not classifiable	
Specific target organ toxicity, systemic toxicity (single exposure)	Category 3 (respiratory tract irritation)	
Label elements		
Specific target organ toxicity, systemic toxicity (repeated exposure)	Category 1 (liver)	
Label elements		
Aspiration hazard	Not classifiable	
Environmental hazard		
Short-term (acute) hazardous to the aquatic environment	Not classifiable	
Long-term (chronic) hazardous to the aquatic environment	Category 4	
	No diagram	

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3. Composition/Information on Ingredients

- 3-1. Single substance or mixture : Shown in the table in Section 1-1.
 3-2. Chemical name : The alloy types and names are shown in the table in Section 1-1.
 Ingredients and content : As shown in the table below.
 3-3. Chemical formula or structural formula : None
 3-4. Ordinance no. (PRTR Law, ISHA) : As shown in the table below.
 3-5. CAS no. : As shown in the table below.

3.2 Ingredients	3.2. Content (mass %)	3-4. Ordinance no. (Only for substances included in SDS)				3.5 CAS No.
		ENCS (PRTRs)		ISHL		
		0.1%≤	1%≤	0.1%≤	1%≤	
Copper (Cu)	98.90≤	-	-	379	-	7440-50-8
Phosphorus (P)	0.004≤0.012	-	-	-	-	7723-14-0
Manganese (Mn)	0.3≤1.1	-	-	-	-	7439-96-5

4. First-Aid Measures

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

4-1. Copper

- If inhaled
 Remove the victim to fresh air, and keep the victim calm in a position comfortable for breathing.
 Seek medical advice if the victim feels sick.
- If on skin
 Remove contaminated clothing.
 Immediately wash the skin.
 Seek medical attention and treatment if the victim feels sick.
 Wash the contaminated clothes before reusing.
- If in eyes
 Wash the eyes carefully with water for a few minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 Seek medical attention and treatment.
- If swallowed
 Immediately rinse mouth with water, and seek medical advice.
- Expected acute and delayed symptoms
 Redness of eyes and skin, ocular pain, cough, headache, shortness of breath, sore throat, abdominal pain, nausea, vomiting. Delayed symptom: Metal fume fever
- Protection for First-aid providers
 First-aid providers must wear protective equipment appropriate for the circumstances.
- Special precautions for physicians
 The victim requires rest and medical follow-up observation.

5. Fire-Fighting Measures

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

5-1. Copper

Extinguishing media	Special powder extinguisher, dry sand.
Incompatible extinguishing media	Water jet, foam extinguisher, CO ₂ .
Specific hazards	May product irritative, toxic, or corrosive gases and fumes in fire.
Specific fire-fighting measures	Using water on a metal fire may produce hydrogen gas. Remove the containers from the area of the fire if not dangerous to do so. It is desirable to use sealing and suffocation methods in extinguishing a metal fire.
Protection of firefighters	Wear appropriate air respirators and chemical protective clothing for fire fighting.

6. Accidental Release Measures

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

6-1. Copper

Personal precautions, protective equipment, and emergency measures	Prohibit unauthorized access. Do not touch the spillage or walk in it. The personnel working on the spillage must wear appropriate clothing (refer to the section 8 "Exposure Control/Personal Protection") and avoid contact with eyes and skin, as well as the inhalation of gases and fumes.
Environmental precautions	Avoid discharging into waterways as it has an impact on the environment.
Retrieval and neutralization	Collect the spillage into an empty sealable container and dispose of it afterwards.
Methods and apparatus for containment and cleaning	Stop the spillage if not dangerous to do so.
Prevention of secondary disasters	Quickly remove all sources of fire as well as flammable substances. (Prohibit smoking, sparks, and fire nearby) Prevent release to drainage, sewer, basements, and enclosed locations.

7. Handling and Storage

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCL not applicable)

7-1. Copper

<Handling>

Technical measures

Carry out facility measures described in the section 8 “Exposure Controls/Personal Protection” and wear protective equipment.

Local exhaust ventilation and general ventilation

Local exhaust ventilation and general ventilation are to be carried out as described in the section 8 “Exposure Controls/Personal Protection.”

Safety precautions

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

Carry out antistatic measures and use conductive protective clothing and conductive safety shoes.

The product must only be used outdoors or in a well-ventilated location.

Do not touch, inhale, or ingest.

Do not inhale dust or fumes.

Wash the hands thoroughly after handling.

Avoiding of contact

Refer to section 10 “Safety and Reactivity.”

<Storage>

Technical measures

Storage location must be equipped with lighting, illumination, and ventilation facility necessary for the storage and handling of dangerous goods.

Incompatible materials

Refer to section 10 “Safety and Reactivity.”

Storage conditions

Container must be sealed and stored in a well-ventilated, cool place.

The product must be stored away from sources of fire, such as heat, sparks, and open flame. - Smoking is prohibited.

The product must be stored away from incompatible materials.

The product must be stored in a locked location.

Containers and packaging materials

No regulations are set out regarding packaging and containers; however, the product should be stored in a sealable, non-broken container.

8. Exposure Controls/Personal Protection

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper, tin) are described below. (JCSCL not applicable)

8-1. Copper

Administrative level

Not specified.

Permissible exposure limit (exposure limit, Biological Exposure Indices)

Japan Society for Occupational Health (2005 Edition)

Not specified.

ACGIH (2005 edition)

TLV-TWA 0.2 mg/m³ (As fume)

TLV-TWA 0.1 mg/m³ (As dust, mist)

Facility measures

Use appropriate explosion-proof electric, ventilation, and illumination devices.

Measures must be taken to prevent sparks from static electricity.

In order to keep the concentration of the substance in the air below the recommended administrative level, facility measures, such as enclosed processes and local exhaust ventilation must be carried out.

The worksite where the substance is stored or handled must be equipped with eye washing and safety shower facilities.

Protective equipment

Respiratory protection

Wear appropriate respiratory protection.

Hand protection

Wear appropriate hand protection.

Eye protection

Protective glasses (standard glasses, standard glasses with side board, goggle-type)

Skin and body protection

Wear protective equipment such as protective clothing and safety shoes.

Hygiene measures

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

Wash the hands thoroughly after handling.

9. Physical and Chemical Properties: the dash (-) shows no information is available.

a) Description for each product name

	KALT
9-1. Physical state and color	Lustrous red-pink solid.
Form	Same as the form of the product.
Odor	None
9-2. pH and concentration	-
9-4. Decomposition temperature	-
9-5. Flash point	-
9-6. Auto-ignition temperature	-
9-7. Explosion properties	-
9-11. Solubility in solvents	-
9-12. Octanol/water partition coefficient	-
9-13. Other data (Radioactivity, bulk density, etc.)	-

b) Descriptions for alloy type

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Alloy name	KALT	
9-3. Melting point °C	1150	
9-10. Density g/cm ³	8.94	

c) Description for the constituting elements

	Cu	P	Mn
9-8. Vapor pressure	-	-	-
9-9. Vapor temperature (boiling point) °C	2582	280	2060

10. Stability and Reactivity

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

10-1. Copper

Safety	Develops green color when exposed to moist air. Produces shock-sensitive compounds when in contact with acetylene compounds, ethylenoxide, and azides.
Possibility of hazardous reactions	Risk of explosion when reacted with oxidizers (chlorates, bromates, iodates, etc.).
Conditions to avoid	Contact with moisture and incompatible substances.
Incompatible substances	Acetylene compounds, ethylenoxide, azides, oxidizers (chlorates, bromates, iodates, etc.)
Hazardous decomposition products	From combustion: Carbon monoxide, carbon dioxide, copper fume.

11. Toxicological Information

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

11-1. Copper

Acute toxicity	Oral rabbits LD ₅₀ 120 µg/kg ³⁾
Skin corrosion/irritation	Causes redness when in contact with skin. ¹⁴⁾
Serious eye damage/eye irritation	Causes redness when in contact with the eye. Causes pain. ¹⁴⁾ Causes irritation. ¹⁰⁾
Respiratory or skin sensitization	Respiratory sensitization: No data available. Skin sensitization: Classified as Group 2 for skin sensitization (substance that may cause sensitization in humans) by Japan Society for Occupational Health, and not classified by Japanese Society for Contact Dermatitis.
Germ cell mutagenicity	No data available.
Carcinogenicity	Classified as Group D (substances that cannot be classified as having carcinogenicity in humans) by EPA.

Reproductive toxicity	No data available
Specific target organ toxicity, systemic toxicity (single exposure)	The fume irritates upper trachea. ¹³⁾ Considered to cause respiratory tract irritation. May cause respiratory irritation (Category3)
Specific target organ toxicity, systemic toxicity (repeated exposure)	Hepatomegaly was observed in a worker exposed to a high concentration of the substance in the air (estimated amount of 200 mg/day) ¹¹⁾ Liver disorders from long-term or repeated exposure (Category 1)
Aspiration hazard	No data available.

12. Ecological Information

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

12-1. Copper

Short-term (acute) hazardous to the aquatic environment

Unclassifiable due to insufficient data.

Long-term (chronic) hazardous to the aquatic environment

Although there is a data which states $L(E) C_{50} \leq 100$ mg/L, the substance was classified as Category 4, as it is metal and its behavior in water is not known.

13. Disposal Considerations

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

13-1. Copper

Residual waste

The substances should be disposed of in accordance with relevant legislation and local regulations. If certain industrial waste processors are licensed by prefectural premiers, or if local public bodies are in charge of processing these wastes, the waste processing should be consigned to these parties. When consigning the processing of wastes, this should be done after the waste processors are sufficiently notified of the risks and hazards.

Contaminated containers and packaging

The containers should be either washed and recycled or be disposed of in an appropriate manner, according to the relevant legislations and local regulations. When disposing of empty containers, the contents must be removed completely.

14. Transport Information

Since no regulations exist for the product as alloys, the regulations for the constitutive elements applicable for ISHA (copper) are described below. (JCSCCL not applicable)

14-1. Copper

<International regulations>

Information on marine transport regulations Non-dangerous goods

Information on air transport regulations Non-dangerous goods

<Domestic regulations>

Information on road transport regulations No specific regulations have been set out.

Information on marine transport regulations Non-dangerous goods

Information on air transport regulations Non-dangerous goods

<Special safety measures>

When transporting, avoid direct sunlight and the breakage, corrosion, and leakage of containers and make sure that the load is prevented from collapsing. The product must not be transported with food or animal feed. Heavy loads must not be placed on top of the product.

15. Regulatory Information

15-1. Copper

Occupational Safety and Health Act

Hazardous substances for which the names, etc., must be notified (Article 57-2, Enforcement Ordinance Article 18-2 attachment table no. 9)
(Ordinance number 379)

16. Other Information (References, etc.)

Japan Copper and Brass Association webpage

Japan Advance Information Center of Safety and Health webpage

Ministry of the Environment webpage

National Institute of Technology and Evaluation webpage

Copper alloy data book (Japan Copper and Brass Association)

16-1. Copper

<References>

1) Ullmanns (E) (5th, 1995)

2) Incompatible Substances Hb (2nd, 1997)

3) RTECS (2005)

4) ICSC (J) (1993)

5) Sax (8th, 1992)

6) Lange (14th, 1992)

7) Gangolli (1st, 1993) vol. 2

- 8) Lide (85th, 2004-2005)
- 9) SRC (Access on Jul 2005)
- 10) PATTY (4th, 1994)
- 11) EHC200 (1998)
- 12) EPA(IRIS (Access on Jul 2005))
- 13) ACGIH (7th, 2001)
- 14) Handbook on Chemical Hazards, Japan Industrial Safety & Health Association (1992)
- 15) Carcinogenicity Classification and Criteria 6th Edition, Japan Chemical Industry Ecology-Toxicology & Information Center (2004)
- 16) GHS Classification Results (Sumika Technical Information Service, Inc.)
- 17) Japan Chemical Industry Association "Container Yellow Card on the Guidance for Emergency First-Aid (label format)"
- 18) Japan Chemical Industry Association "Chemical Regulation Search System" (CD-ROM) (2005)
- 19) Japan Chemical Database Ltd. "Complete Chemical Database" (2005)
- 20) Safety DB (Revised and extended edition, 1997)
- 21) JETOC "Safety Check Data Collection for the Existing Chemicals in JCSCL"
- 22) Ministry of the Environment "Project on the Study of Chemical Impact on Environment"

Product safety data sheets are provided to the companies handling hazardous chemical product, as reference information to ensure safe handling. We ask the companies handling these chemical products to please understand that the sheet must be used as a reference for the conduct of appropriate measures suitable for the individual handling circumstance. These actions are to be carried out under the company's own responsibility. This data sheet itself is not a document to assure safety in handling these products.

Revision No.	Contents of revision	Date
0	New dawned	3 rd .Mar. 2014
1	Change the title 【Material Safety Data Sheet (MSDS)→Safety Data Sheet (SDS)】	25 th .Sep. 2015
2	Change the Item names due to revised JIS Z7252	4 th . Nov. 2021
3	Changed the company name has from Kobelco & Materials Copper Tube, Ltd. to KMCT Corporation	1 st . Apr. 2022