

SDS (SAFETY DATA SHEET)	Control No	SDS-PS-006
	Date Issued	June 24, 2019
	Revision No	6
Product Names	Free Cutting Brass Rod & Wire	

SECTION 1	Product and company identification
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a. Product Name	Free Cutting Brass Rod & Wire
Item Names	C3320, C3520, C3601, C3602, C3603, C3604, C3605, C3607
b. Recommended use and restrictions on use	
Item recommended use	Electricity, Clock Parts, Gear, Building, Other Parts
Item restrictions on use	No data
c. Manufacturer/Supplier/Distributor Information	
Company's Name	POONGSAN CORPORATION Ulsan Plant
Company's Address	94, Sanam-ro, Onsan -eup, Ulju-gun, Ulsan, Korea
Phone / Fax Number	+82-52-231-9114 / +82-52-231-9400

SECTION 2	Harmfulness · riskiness
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a. Classification of harmfulness and riskiness	Acute toxicity(oral) :classification 2 Carcinogenic : classification 2 Mutagenicity : classification 2 Reproductive toxicity : classification A Specific Target Organ Toxicity (Single Exposure) : classification 3-respiratory tract irritation Specific Target Organ Toxicity (Repeated Exposure) : classification 1 Acute aquatic toxicity: classification 1 Chronic aquatic toxicity : classification 1
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b. GHS labels, including precautionary statements	
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Hazard Symbols



Signal word	Risk
Health Hazards	H301 Toxic if swallowed H335 May cause respiratory irritation H341 May cause hereditary effect. H351 May cause a cancer occurrence. H360 Fetus and reproductive ability may damage. 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 statements

Prevention	P260 Do not breathe dust/fume/gas/mist/vapos/spray. P264 Wash your hands thoroughly after handling P270 Do not eat, drink or smoke when using this product. P280 Please wear protective gloves, protective clothing, goggle, face mask of protection
Response	P301+P310 If swallowed: Immediately call a poison center or doctor/physician. P308+P313If you were concerned about being exposed or contacted, you better to ask medical advice and take a step P314 Get medical advice/attention if you feel unwell
Storage	P403+P223 Store in a well-ventilated place.
Disposal	P501 Dispose of contents/container to Waste Management Act

c. Other hazards which do not result in classification(NFPA)

Division	Health	Fire	Reactivity
Copper	No data	No data	No data
Zinc	No data	No data	No data
Lead	No data	No data	No data

SECTION 3

Composition/Information on ingredients

Component	Synonyms	CAS number	Content (%)
Copper	-	7440-50-8	57.5~67.0
Zinc	-	7440-66-6	37.6~41.0
Lead	-	7439-92-1	1.5~2.4

SECTION4

First aid measures

a. Eye contact	Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. If the chemicals is entering the eyes, immediately should receive the examination and treatment.
b. Skin contact	remove the chemicals immediately with soap and water for at the least 15minutes. If skin irritation persists or a rash develops as a result of excessive contact, see a doctor.
c. Inhalation	If inhaled chemicals, get immediate medical examination and treatment avoid away from area of a risk.
d. Ingestion	If person is unconscious, do not feed anything and do not induce vomit. If person is vomiting spontaneously, Head place lower than hips in order to avoid possibility of inspiration in the lungs. If unconscious, turn head to side to prevent airway obstruction. contact the emergency medical treatment organization and evacuate immediately to the hospital.
e. Indication of immediate medical attention and notes for physician	consider gastric lavage when ingested chemicals. If breathing is difficult, give oxygen and continue to monitor antidote(copper) : potassium, natrium, edetate/glucose, intravenous administration ; penicillamine, oral administration Antidote(lead) : glucose/water, intravenous administration ; Dimercaprol, Intramuscular Injection, calcium natrium edetate/procaine, Intramuscular Injection; penicillamine, oral administration

SECTION 5 Fire-fighting measures

a. Suitable (and unsuitable) extinguishing media

Suitable	Dolomite, dry chemical powder for metal fire, sand, graphite, soda ash, sodium chloride, lime
unsuitable	Foam extinguisher, Water
Large fire	No data

b. Specific hazards arising from the chemical

Toxicant from combustion	Zinc oxide, Lead oxide
Fire and Explosion Hazards	in case of general conditions, you can ignore fire and explosion. but mixture of dust and air may have explosion or ignition.

c. Special protective equipment and precautions for fire-fighters

Protective equipment	Protective clothing
Prevention measure	Prevent people unconcerned from getting close to risk area, isolate and must prohibit approach. use appropriate extinguishing agent in surrounding fire. Avoid inhalation of combustion products Avoid direct contact with the water

SECTION 6 Accidental release measures

A. For personal precautions, protective equipment and emergency procedures	Avoiding direct contact, wear suitable protective equipment.
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B. Environmental precautions and protective procedures

Air	No data
Soil	Dispose of leaked substances what put into a suitable container.
Water	Please be Collected using vacuum pump. absorb leaked substance with activated carbon.
	accumulated substance in activated carbon must be handled after inpour at waste water disposal plant using hose.

C. Methods and materials for containment and cleaning up

Small leak	Please be collected in a suitable container leak substance. implement cleaning by only those who have been trained about riskiness of leaked substance. Avoid direct contact with the water and leaked substance.
Large leak	Please notify the contents of the discharge to state and local government agencies when the recommended dose or more.

SECTION 7 Handling and storage

A. Precautions for safe handling	prevent a dust's creation and spread.
B. Conditions for safe storage (including any incompatibilities)	Please avoid contact with oxidizing substances. Be stored in a cool and dry place. please use and store in accordance with given laws from Government departments and local governments.

SECTION 8 Exposure controls & personal protection

A. Control parameters(e.g. occupational exposure limit values, biological limit values)

KOSHA	
Copper	Copper(Dusts and mists, as Cu) TWA – 1 mg/m ³ Copper(Fume)TWA – 0.1 mg/m ³
Lead	TWA – 0.05mg/m ³ Lead(Dusts and Fume)
Zinc	No data
ACGIH	
Copper	TWA 0.2mg/m ³ , 1 mg/m ³
Lead	TWA 0.05mg/m ³
Zinc	No data
Biological exposure limits	No data

B. Appropriate engineering controls

Engineering management	If dust or hume are generated, close up the working process or install ventilator. And manage in order that keep the appropriate wind speed. If dust or hume are generated, check working process which be allowable for standard and leakage threshold of Labor Department.
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C. Personal protective equipment

Respiratory protection	respiratory protection is unnecessary in general state, If dust or fumes are generated, use only respiratory equipment certified by KOSHA.
Eye protection	Install the emergency washing facilities so that workers use easily. You must use safety glasses to protect your eyes from dust or fumes.
Hands protection	You must use safety gloves to avoid direct contact.
Body protection	If there is exposed skin directly, you must wear protective clothing to protect your skin.

SECTION 9 Physical and chemical properties

a. appearance		j. Upper/lower flammability or explosive limits	No data
physical state	Solid	k. Vapor pressure	No data
color	Yellow	l. Solubility	(Insoluble)
b. Odor	Odorless	m. Vapor density	No data
c. Odor threshold	No data	n. Relative density	8.5
d. pH		o. Partition coefficient: n-octanol/water	
e. Meting point/freezing point	985 °C	p. Auto-ignition temperature	No data
f. Initial boiling point and boiling range	No data	q. Decomposition temperature	No data
g. Flash point	No data	r. Viscosity	No data
h. Evaporation rate:	No data	s. Molecular mass	
i. Flammability (solid, gas):	No data		

SECTION 10 Stability and reactivity

a. Chemical stability and possibility of hazardous reactions	it is stabilized in the room temperature and normal pressure. no polymerization. minute particle(zinc) may react with water.
b. Conditions to avoid	Inhibit dust creation. Avoid heat, flames, sparks and other of ignition source. Be stored in dry place.
c. Materials to avoid	Incompatible materials : acid, base, metal, oxidizer, reducer, halogen-carbon compound, metallic salts, halogen, combustibles, amine, metallic oxide.
d. Hazardous decomposition products	Pyrolysate : tin oxide, etc.

SECTION 11 Toxicological information

a. Information on the likely routes of exposure

routes of exposure	Oral/Inhalation : respiratory inhalation or ingestion of dust,mist,hume Absorption : absorption of skin or eyeball of dust,mist,hume
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b. Information on the likely routes of exposure

Acute toxic	
Oral	LD50 60-400 mg Cu/kg Rat(Cu), LD50 237 mg/kg, LD50 630 mg/kg Rat(Elemental)(zinc)
Dermal	No data
Inhalation	No data
Skin corrosive/irritant	No data(Zinc/body/No irritation)
Serious eye damage/eye irritation	No data
Respiratory sensitization	No data
Skin sensitization	No data
Carcinogenicity	
Occupation Safety and Health Acts	Carcinogenicity(lead)
Ministry of Labor Notice	No data
IARC	2B(lead)
OSHA	No data
ACGIH	No data
NTP	No data
Germ Cell Mutagenicity	Lead itself causes chromosome abrration and micronucleus induction
Reproductive toxicity	It also affects to sperm forming and ovulatory dysfunction due to working environment(lead)
Specific target organ toxicity (single exposure)	Hume stimulate the upper airway (Copper)
Specific target organ toxicity (repeated exposure)	Cause liver damage in people(Copper) It causes synthesis inhibition of hem, renal insufficiency and cerebropathia(lead) It affects functions of peripheral and central nerves.(lead) It is related to vessel system as hypertension and immunosuppressive action.(lead)
Aspiration hazard	No data

SECTION 12 Ecological Information

a. Aquatic and terrestrial ecotoxicity

Fish	
Copper	LC50 0.37 mg/l 96 hr
Lead	LC50 2.2 mg/l 96 hr
Zinc	LC50 0.24 mg/l 96 hr Oncorhynchus mykiss
Crustacea	
Copper	EC50 0.0318 mg/l 48 hr
Lead	No data
Zinc	EC50 0.0354 mg/l 48 hr Daphnia magna
Algae	
Copper	LC50 0.092 mg/l 15 hr
Lead	No data
Zinc	EC50 0.0106 mg/l 72 hr (Pseudokirchneriella subcapitata)

b. Persistence and degradability

Persistence	
Copper	log Kow -0.57 (estimation)
Lead	No data
Zinc	log Kow -0.47
Degradability	No data

c. Bioaccumulative potential

Bioaccumulation	
Copper	BCF 5830
Lead	No data
Zinc	BCF 600 (fish)
Degradability	No data

d. Mobility in soil No data

e. Other adverse effects No data

SECTION 13 Disposal considerations

a. Disposal method	Classify and dispose of waste in accordance with Waste Control Act and characteristic. Please entrust with company licensed in accordance with Wastes Control Act.
b. Disposal precaution	Please comply with the standard and methods about waste's collection, transportation, storage, handling specified by Waste Control Act.

SECTION 14 **Transport information**

a. UN number

Copper	3089
Lead	UN transport hazard class: None
Zinc	1436

b. UN proper shipping name Not applicable

c. Transport hazard class

Copper	4.1
Lead	Not applicable
Zinc	4.3

d. Packing group, if applicable Not applicable

e. Marine pollution No data

f. Special precautions for user

Emergency management type of fire

Copper	F-G
Lead	Not applicable
Zinc	F-G

Emergency management type of leak

Copper	S-G
Lead	Not applicable
Zinc	S-O

SECTION 15 **Regulatory information**

a. Industrial Safety and Health Act

Copper	<p>Controlled substances : Rules on occupational health (Asterisk 7)</p> <p>Material working environment measurement (Measurement cycle : 6Months) : Occupation safety and health Acts enforcement regulations (Asterisk 11-4)</p> <p>Special medical examination material (Measurement cycle : 12 Months) : Occupation safety and health Acts enforcement regulations (Asterisk 12-2)</p> <p>Substance exposure limits set : Exposure standard to physical agents and chemical (Ministry of Labor Notice)</p>
Lead	<p>Controlled substances : Rules on occupational health (Asterisk 7)</p> <p>Material working environment measurement (Measurement cycle : 6Months) : Occupation safety and health Acts enforcement regulations (Asterisk 11-4)</p> <p>Special medical examination material (Measurement cycle : 12 Months) : Occupation safety and health Acts enforcement regulations (Asterisk 12-2)</p> <p>Substance exposure limits set : Exposure standard to physical agents and chemical (Ministry of Labor Notice)</p> <p>Limits set material : Occupation safety and health Acts enforcement regulations (Asterisk 11-3)</p>

Zinc	<p>Controlled substances : Rules on occupational health (Asterisk 7)</p> <p>Material working environment measurement (Measurement cycle : 6Months) : Occupation safety and health Acts enforcement regulations (Asterisk 11-4)</p> <p>Special medical examination material (Measurement cycle : 12Months) : Occupation safety and health Acts enforcement regulations (Asterisk 12-2)</p> <p>Substance exposure limits set : Exposure standard to physical agents and chemical (Ministry of Labor Notice)</p>
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b. Toxic Chemical Control Act	Not applicable
c. Dangerous Material Safety Control Act	Not applicable
d. Wastes Control Act	Not applicable
e. Other requirements in domestic and other countries	No data

SECTION 16

Other information

a. Information source and references	<ol style="list-style-type: none"> 1. National Institute of Environmental Health Sciences Country hazardous materials information system : NCIS 2. National Emergency Management chemical substances information system 3. POONGSAN CORP. Test Data(Ulsan Plant Q.A) 4. Ministry of Labor Notice 5. Others Regulations and Notice
b. first version of the SDS	April 17, 2006
c. Revision number and date	
Revised frequency	6 th
latest version of the SDS	June 24, 2019
d. Others	<p>Safety data sheet(SDS) was written in accordance with Chemical classification and indication and SDS standard from Korea Occupational Safety and Health Agency refer to SDS Editing Program.</p> <p>this document is not quality assurance about products, but which described about safety, health, environment at the normal situation. if characteristics change by heating and processing, you should use after check a additional Health and Safety Act. Also, this information may be revised without notice, and you can be provided in our company's website. Other details, please contact us at Safety & Environment Team or Quality Assurance.</p>