

<h1>SDS</h1> <h2>(SAFETY DATA SHEET)</h2>	Control No	SDS-PS-025
	Date Issued	January 22, 2019
	Revision No	8
Product Names	C194 (CDA C19400) Strip	

SECTION 1 Product and company identification

a. Product Name	C194 (CDA C19400) Strip
Item Names	C1940
b. Recommended use and restrictions on use	
Item recommended use	Lead Frame, Terminal, Electricity, 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 Hazard identification

a. Classification of the substance or mixture	Acute toxicity(oral) : classification 4 Specific Target Organ Toxicity (Single Exposure) : classification 3-respiratory tract irritation Acute aquatic toxicity: classification 1 Chronic aquatic toxicity : classification 1
b. GHS labels, including precautionary statements	
Hazard Symbols	



Signal word	Statements
Health Hazards	H335 May stimulate respiratory organs. H372 Body(liver, kidney, nervous system, respiratory system, reproductive organ) may damage with long-term or repeated exposure. H400 Very toxic to aquatic life H410 Very toxic to aquatic life with long lasting effects

Precautionary statements

Prevention	P260 If dust and fumes is leaked, do not breathe and smoking. P264 Wash the hand thoroughly after handling product. P270 When using the product, do not breathe and smoking.
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Response	P301+P312 If you feel uncomfortable after swallowing, you have to undergo a medical examination P314 If you feel uncomfortable, you have to medical advice. P302+P352 If you bury on the skin, wash with plenty of soap and water.
Storage	P403+P223 Container should be Stored hardly in a well-ventilated place.
Disposal	P501 Dispose of 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
Iron	No data	No data	No data

SECTION 3 Components and Contents

Component	Synonyms	CAS number	Content (%)
Copper	-	7440-50-8	97.5~97.9
Iron	-	7439-89-6	2.1~2.5

SECTION 4 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 affected about exposure, move a patient into non pollution area. If inhaled chemicals, immediately see a doctor.
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. Please call 119 or emergency medical service, and immediately taken to hospital.
e. Indication of immediate medical attention and notes for physician	antidote(copper) : potassium, natrium, edetate/glucose, intravenous administration ; penicillamine, oral administration consider gastric lavage when ingested chemicals. If breathing is difficult, give oxygen and continue to monitor

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	Directly, the water shoot
Large fire	No data

b. Specific hazards arising from the chemical

Toxicant from combustion	Lead oxide, Zinc 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. Personal precautions, protective equipment and emergency procedures	Avoiding direct contact, wear suitable protective equipment. Don't touch and contact a leaked substance.
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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. Keep spilled material is treated with activated carbon adsorption Please collected chemicals by using a mechanical device.

C. Methods and materials for containment and cleaning up

Small quantity outflow	Please be collected in a suitable container leak substance.
Large quantity outflow	Prevent people unconcerned from getting close to risk area, isolate and must prohibit approach. Please notify the contents of the discharge to state and local government agencies when the recommended dose or more. remove all source of ignition. (heat, flame, spark, etc.)

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 use and store in accordance with given laws from Government departments and local governments. Please avoid contact with strong acid.

SECTION 8 Exposure controls & personal protection

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

KOSHA	
Copper	TWA - 1mg/m ³ STEEL - TWA - 2mg/m ³ Copper(Dusts and mists, as Cu)
Iron	No data

ACGIH

Copper	TWA ppm 0.2 mg/m ³ , 1 mg/m ³
Iron	No data
Biological exposure limits	No data

B. Appropriate engineering controls

Engineering management	<p>If the chemicals is a risk of explosion, Install ventilator equipped with explosion proof system.</p> <p>check working process which be allowable for standard and leakage threshold of Labor Department.</p> <p>Install ventilator (local ventilation system, etc) and wind speed must maintain appropriately.</p>
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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	<p>Install the emergency washing facilities so that workers use easily.</p> <p>You must use safety glasses to protect your eyes from dust or fumes.</p>
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	Red	l. Solubility	(Insoluble)
b. Odor	Odorless	m. Vapor density	
c. Odor threshold	No data	n. Relative density	
d. pH	No data	o. Partition coefficient: n-octanol/water	
e. Melting point/freezing point	1265 °C	p. Auto-ignition temperature	No data
f. Initial boiling point and boiling range		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	<p>it is stabilized in the room temperature and normal pressure.</p> <p>no polymerization.</p> <p>minute particle may react with water.</p>
b. Conditions to avoid	<p>Inhibit dust creation.</p> <p>Avoid heat, flames, sparks and other of ignition source.</p>
c. Materials to avoid	Peroxide, metal, Amine, Halogen
d. Hazardous decomposition products	Pyrolysate : decompositon materials, etc.

SECTION 11 Toxicological information

a. Route that highly possible exposure

Exposure Route	No data
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b. Information of health hazard

Acute toxic	
Oral	LD50 481 mg/kg Experimental species : Rat (OECD TG 401, GLP) (Copper)
Dermal	LD50 >2000 mg/kg Experimental species : Rat (OECD TG 402, GLP) (Copper)
Inhalation	Dust LC50 >5.11 mg/l 4 hr Experimental species : Rat (OECD TG 436, GLP) (Copper)
Skin corrosive/irritant	Test species (Iron)
Serious eye damage/eye irritation	No data
Respiratory sensitization	No data
Skin sensitization	No data
Carcinogenicity	
Occupation Safety and Health Acts	No data
Ministry of Labor Notice	No data
IARC	No data
OSHA	No data
ACGIH	No data
NTP	No data
Germ Cell Mutagenicity	No data
Reproductive toxicity	No data
Specific target organ toxicity (single exposure)	Hume stimulate the air duct (Copper)
Specific target organ toxicity (repeated exposure)	Live impairment to human (Copper)
Aspiration hazard	No data

SECTION 12 Ecological Information

a. Aquatic and terrestrial ecotoxicity

Fishes	
Copper	LC50 0.286 96 hr Oncorhynchus mykiss(0.2864% sewage treatment plant effluent, 0.164river water mg/L)
Iron	LC50 13.6 mg/l 96 hr
Crustacean	LC50 0.0338 ~ 0.792 mg/l 48 hr Daphnia magna(OECD TG 202)(copper)
Birds	NOEC 0.0376 ~ 0.708 mg/l 72 hr 깃대(Phaeodactylum tricornutum, OECD TG 201)(copper)

b. Resistance and resolvability

Resistance	
Copper	log Kow -0.57 (Estimated figure)
Iron	No data
Resolvability	No data

c. Bioaccumulative potential

Biodegradability	No data
Bioaccumulation	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
Iron	3089

b. UN proper shipping name

Not data

c. Transport hazard class

Copper	4.1
Iron	4.1

d. Packing group, if applicable

Copper	II
Iron	2

e. Environmental hazards

No data

f. The user needs or require to know that special safety measures regarding the shipping or transportation

Emergency management type of fire

Copper	F-G
Iron	F-G

Emergency management type of leak

Copper	S-G
Iron	S-G

SECTION 15 Regulatory information

a. Industrial Safety and Health Act

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

- 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
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- a. Information source and references**
 - 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. Revised research project of labor department about chemical exposure limit(2005)
 - 5. Others Regulations and Notice

- b. first version of the SDS** April 17, 2006

- c. Revision number and date**
 - Revised frequency 8th
 - latest version of the SDS January 22, 2019

- d. Others**

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.

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