

## Material Safety Data Sheet

No. of Substance Safety Information:	01
Version:	C03
Compile Date:	2021-5-28

### 1. Information of substance and manufacturer::

Substance name:	Tin phosphor bronze			
Code:	boway51100	boway51000	boway51900	boway52100
Chemical name:	Cu-Sn-P Alloy			
Category:	Metal compound			
Name of manufacturer/supplier:	Ningbo Boway Alloy Material Co.,Ltd			
Address of manufacturer/supplier:	No. 288, Honggang Road, economic development zone, Ningbo, China			
Telephone of manufacturer/supplier:	86-574-89016105	Fax:	86-574-89016087	
Website of manufacturer/supplier:	www.bowayalloy.com			
Emergency contact Tel:	86-574-89016105			

### 2. Component information:

Component	Chemical name	content (%)				(CAS.NO.)
		boway51100	boway51000	boway51900	boway52100	
copper	Cu	remainder	remainder	remainder	remainder	7440-50-8
lead	Pb	<0.05	<0.05	<0.05	<0.05	7439-92-1
iron	Fe	<0.1	<0.1	<0.1	<0.1	7439-89-6
zinc	Zn	<0.3	<0.3	<0.3	<0.2	7440-66-6
tin	Sn	3.5-4.9	4.2-5.8	5.0-7.0	7.0-9.0	7440-31-5
phosphorus	P	0.03-0.35	0.03-0.35	0.03-0.35	0.03-0.35	7723-14-0
Cadmium	Cd	≤0.001	≤0.001	≤0.001	≤0.001	7440-43-9
Cu+Sn+P		>99.5	>99.5	>99.5	>99.5	/

Note: this product is not dangerous in solid state, but dangerous in powder or smog state.。

### 3. Danger information:

Warning:
Long time exposure to powder or smog of this product can lead to hurt on eyes, respiratory system and cortex, so protective items must be used, including goggle, appropriate cloth, necessary whole-body protection. After contact with it, a complete cleaning of the contacted body part must be done.

Category name:	Copper ferrous metal compound
Danger information:	Metal powder or smog is irritative to skin and eyes, and hazardous to lung, but metal finish product itself is not hazardous.
Danger level (powder or smog):	Health: 1; Flammability:0 (0 is lowest level, 4 is highest level) Substance hazard: no

## 4. First aid measures:

For hazard by powder and smog:

Contacted with eyes:	Clean with water inside eyelids for at least 15 minutes. In case that eyes feel uncomfortable, go to hospital immediately.
Swallowed:	Drink lots of water to promote emesis and go to hospital immediately.
Contacted with skin:	Clean with water.
inhaled	Take a rest in a well-ventilated and cool place, keep warm with cloth. If it's serious, go to hospital.

## 5. Fire and explosion information:

Flammability information:

explosibility	no
flammability	no
explosibility	no
flash	not applicable
natural burn	not applicable

Fire extinguishing agent:

Extinguishing method: cover extinguishing agent on product surface
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Anti- fire suggestion:

Powder may lead to explosion or generate flammable gas.
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## 6. Leakage treatment

In processing this product, powder may be generated and cause fire, so source of ignition must be removed. Only powder can lead to leakage, so sucking device must be installed to filter powder in the air and lower the concentration of powder.	
Leakage to air	not applicable
Leakage to water	not applicable
Leakage to ground	not applicable

## 7. Access, storage and transportation

Precautions for access

<p>Be careful when accessing and getting the product because the ends of product are easy to cut skin.</p> <p>It's easy to generate powder during machining, so protections must be used for eyes, skin and breathing.</p> <p>Pay attention to prevent the powder from leaking into air.</p> <p>Risk of product being turned over exists, which can cause crush, so be careful during handling.</p> <p>The end of strapping strip is possible to bounce and cut body, skin and eyes.</p> <p>Powder on clothes or tools should be cleaned and removed with water or vacuum cleaner, not through patting or other ways.</p>
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## Conditions for storage

Max. temperature for storage in store: no  
Avoid storing in moist or acid or alkaline environment.

## 8.Exposure and protection:

Cu exposure standard:		OSHA (PEL)		ACGIH (TLV)	
		ppm	Mg/m <sup>3</sup>	ppm	Mg/m <sup>3</sup>
	smog	no	0.1	no	0.2
powder	no	1	no	1	
Sn exposure standard:		OSHA(PEL)		ACGIH(TLV)	
		ppm	Mg/m <sup>3</sup>	ppm	Mg/m <sup>3</sup>
	powder	no	no	powder	no
respiratory protection	Respiratory protection tools are needed and mask certified by NIOSH should be worn in case of long-time exposure to powder and smog.				
Ventilation protection	If powder and smog are possible to be generated in work, ventilation device and dust collection device must be installed, and eating and smoking is not allowed during work.				
Eyes and skin protection	Wear goggle, protective gloves to avoid being cut.				
Body protection	Wear appropriate clothes and safety shoes during work.				

## 9. Physical and chemical nature:

appearance	Solid metal with Green gray luster			
Melting point	boway51100	boway51000	boway51900	boway52100
	1060°C	1050°C	1045°C	1020°C
Boiling point	no			
Specific gravity	boway51100	boway51000	boway51900	boway52100
	8.86g/cm <sup>3</sup>	8.86g/cm <sup>3</sup>	8.83g/cm <sup>3</sup>	8.80g/cm <sup>3</sup>
Vapour pressure	Not applicable			
Solubility	Not applicable			
Ph value under 25°C	Not applicable			

## 10.inactive/inert substance:

inactive/inert substance

## 11.Toxicity

## Source

Powder: swallowed, contacted with skin, inhaled, contacted with eyes  
Smog: inhaled, contacted with eyes and skin  
The product itself is not toxic.

Toxicity: this alloy product has no toxicity.

The toxicity of the single element is as follows (only for reference):

Corrosion to skin: no information

Irritation (to eyes, skin): copper product can cause contact dermatitis, and zinc is hazardous to eyes.

Acute toxicity: swallowing of copper powder by mistake can cause acute toxicity with symptoms such as emesis, powerlessness and stomachache. Inhaling too much powder can cause chest pain, fever, etc.

Powder and smog can aggravate asthma and emphysema patients' condition.

## 12. Ecology information

The finish product has no toxicity to ecology.

Decomposability: no information

Accumulation: no information

Burstiness: no records indicate that the product will cause burstiness.

Toxicity of fish: some record shows that when the concentration of copper in water (especially soft water) is up to 0.015~3.0mg/l, it's toxic to many kinds of fish, crustacean animals, mollusk animals and plankton.

## 13. Waste disposal

The waste of this product is not hazardous. When it's necessary to be discarded, send it to recyclers for recycling.

## 14. Shipment and transportation

During shipment and transportation, direct contact with water is not allowed. It's possible that the product could fall down and turn over.

## 15. Laws and regulations

Normally there's no specific law and regulation, but when in place where powder could be generated, work safety and health regulations must be followed.

## 16. Other information

This MSDS information must be fully understood and accepted by all users and people who ship or store it or are exposed to it, and should be applied to regulations related to use, processing, manufacturing and management of this product. The latest information may be included here when compiling this MSDS document, but there's no guarantee to any content here.