

Precision Brand Copper Shim Stock

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Accuracy Specifications:

Thickness	Thickness Tolerance	Width Tolerance
0.001 – 0.003"	± 0.0003	± 0.005"
0.004 – 0.007"	± 0.0004"	± 0.005"
0.008 – 0.010"	± 0.0005"	± 0.005"

Material and Mechanical Properties:

Material	Copper 110 Annealed
Copper	99.90
Other Elements	0.10
Temper	Annealed
Rockwell Hardness	65 Max F Scale
Tensile Strength	0.001 – 0.003: 20 KSI Min 0.004 – 0.010: 25 KSI Min
Elongation	0.001 – 0.003: 10% in 2" 0.004 – 0.010: 20% in 2"
Meets Specifications	ASTM-B-152 ASTM-B-451

Inch Shim Rolls: 6" wide

Code	Thickness inch	Thickness mm	Box Qty	Width in	Length in	Weight kilos	Weight lbs
77-568-130	0.001"	0.025	1	6"	100"	0.14	0.31
77-568-195	0.002"	0.051	1	6"	100"	0.23	0.50
77-568-245	0.003"	0.076	1	6"	100"	0.31	0.68
77-568-280	0.004"	0.102	1	6"	100"	0.39	0.86
77-568-320	0.005"	0.127	1	6"	100"	0.48	1.05
77-568-345	0.006"	0.152	1	6"	100"	0.56	1.23
77-568-370	0.007"	0.178	1	6"	100"	0.69	1.42
77-568-395	0.008"	0.203	1	6"	100"	0.73	1.60
77-568-450	0.010"	0.254	1	6"	100"	0.89	1.97

Packed Weight and Dimensions

Code	Thickness inch	Thickness mm	Weight kilos	W mm	H mm	L mm
77-568-130	0.001"	0.025	0.14	80	80	180
77-568-195	0.002"	0.051	0.23	80	80	180
77-568-245	0.003"	0.076	0.31	80	80	180
77-568-280	0.004"	0.102	0.39	80	80	180
77-568-320	0.005"	0.127	0.48	80	80	180
77-568-345	0.006"	0.152	0.56	80	80	180
77-568-370	0.007"	0.178	0.69	80	80	180
77-568-395	0.008"	0.203	0.73	80	80	180
77-568-450	0.010"	0.254	0.89	80	80	180

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MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: COPPER SHIM
Product Code: 68
Chemical Name: Mixture - Metal Alloy
Revision Date: 01/01/2010

Formula: Not applicable - mixture
Product Use: Metallurgical Products

COMPANY ADDRESS	Precision Brand Products, Inc. 2250 Curtiss Street Downers Grove IL 60515 USA www.precisionbrand.com	Phone Number for Information: 630-969-7200	EMERGENCY TELEPHONE NUMBER: CHEMTREC 800-424-9300 USA & CANADA 202-483-7616 International
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2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Components	% By Weight	EINECS/ ELINCS #	EU Classification	
				Symbol	R-Phrase
7440-50-8	Copper	99.75 - 100	231-159-6	None	None

OSHA REGULATORY STATUS: In solid form, not hazardous. Dust or fume: irritant

In solid form, this material is not hazardous. Dust and fumes are hazardous materials.

3. HAZARDS IDENTIFICATION

WARNING!

EXPOSURE TO DUST OR FUMES CAN CAUSE EYE AND RESPIRATORY TRACT IRRITATION. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

HAZARD RATINGS (for dust or fume)
Hazardous Materials Identification
System (HMIS)

Degree of hazard (0 = low, 4 = extreme)
Health: 1 Flammability: 0 Physical Hazard: None

National Fire Protection Association (NFPA)

Mixture. Not rated.

HUMAN THRESHOLD RESPONSE DATA

Odor Threshold:
Irritation Threshold:
Immediately Dangerous to Life or Health
(IDLH) Value(s):

Unknown
Unknown
The IDLH for this product is not known. The IDLH
for copper is 100 mg/m³.

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*POTENTIAL HEALTH EFFECTS*ACUTE EFFECTS

Eye: Dust or fume can cause irritation consisting of redness, swelling, and pain. May cause conjunctivitis with repeated exposures.

Skin: Material not expected to be absorbed through the skin. Contact with dust may cause mild irritation consisting of redness and/or swelling.

Inhalation: Inhalation of high concentrations of powder, dust, or fume may cause respiratory and nasal irritation, coughing, and difficulty breathing. Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain.

Ingestion: Ingestion of large amounts of dust may cause nausea, diarrhea and or stomach pain.

CHRONIC EFFECTS:

Prolonged or repeated skin contact with dust may cause more severe irritation or dermatitis. Prolonged or repeated inhalation of dust or fume may cause more severe irritation and possibly lung damage.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Exposure to dust or fume may aggravate an existing dermatitis, asthma, emphysema, or other respiratory disease.

POTENTIAL ENVIRONMENTAL EFFECTS: None known. Product has not been tested for environmental properties.

4. FIRST AID MEASURES

EYE CONTACT: Immediately flush out fume and dust particles with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician at once.

SKIN CONTACT: If exposed to dust or fumes, wash skin with plenty of water. Remove contaminated clothing and shoes and launder before reuse. If skin irritation or rash develops and persists or recurs, get medical attention.

INHALATION: If symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention.

INGESTION: Not a likely route of exposure for finished metal alloy. If dust is ingested, immediately drink water to dilute. Consult a physician if symptoms develop.

NOTE TO PHYSICIANS: There is no specific antidote to the active ingredients in this product; use symptomatic treatment.

5. FIRE FIGHTING MEASURES

PROPERTY	VALUE	PROPERTY	VALUE
Explosive	No	Flammable	No
Combustible	No	Pyrophoric	No
Flash Point (°C)	Not applicable	Burning Rate of Material:	Not applicable
Lower Explosive Limit:	Not applicable	Autoignition Temp.:	Not applicable
Upper Explosive Limit:	Not applicable	Flammability Classification: (defined by 29 CFR 1910.1200)	Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dust may cause an ignitable and/or an explosive atmosphere.

EXTINGUISHING MEDIA: For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire-extinguishing media appropriate to fight surrounding fire.

SPECIAL FIREFIGHTING PROCEDURES: None required.

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6. ACCIDENTAL RELEASE MEASURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTRC AT 800-424-9300. In dust form, this product may be an explosive hazard. Remove all sources of ignition. Dust or fume may be suppressed by the use of a local exhaust system. Dispose of per guidelines under Section 13, WASTE DISPOSAL.

7. HANDLING AND STORAGE

HANDLING: Avoid dispersion of dust in air.

STORAGE: No special requirements.

Shelf Life Limitations: None known

Incompatible Materials for Packaging: None known

Incompatible Materials for Storage

or Transport: None known

OTHER PRECAUTIONS: Do not shake clothing, rags or other items to remove dust.
Dust should be removed by washing or HEPA vacuuming.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS#	CHEMICAL NAME	ACGIH TLV	OSHA PEL	INTERNATIONAL OELS
7440-50-8	Copper	0.2 mg/m ³ (fume), 1 mg/m ³ (dusts and mists)	0.1 mg/m ³ (fume) 1 mg/m ³ (dusts and mists)	Austria, Belgium, Canada: 0.2 mg/m ³ (fumes), 1 mg/m ³ (dusts) Denmark: 1.0 mg/m ³ (dust and powder) Germany (MAK): 0.1 mg/m ³ (fume), 1 mg/m ³ (dusts and mists)

ENGINEERING CONTROLS:

Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation.

EYE/FACE PROTECTION:

Use safety glasses.

SKIN PROTECTION:

Wear impervious (cut-resistant) gloves and other protective clothing (aprons, coveralls) as appropriate to prevent skin contact when using this product. If generating a dust, wash thoroughly after handling, especially before eating, drinking, or smoking.

RESPIRATORY PROTECTION:

Respiratory protection is not normally needed. If dusting occurs or fumes are generated above the PEL/TLV, use a NIOSH-approved half-face or full-face respirator equipped with High Efficiency Particulate (HEPA) filter cartridges. Do not eat, drink, or smoke while using this product in dust form.

GENERAL HYGIENE CONSIDERATIONS:**9. PHYSICAL AND CHEMICAL PROPERTIES**

PROPERTY	VALUE	PROPERTY	VALUE
<i>Appearance:</i>	Red metallic	<i>Vapor Density (air = 1)</i>	Not applicable
<i>Odor:</i>	None	<i>Boiling Point (°F):</i>	No data
<i>Molecular Weight:</i>	Not applicable-Mixture	<i>Melting Point:</i>	L: 1080-1090°C (1976-1995°F) S: 965-1085°C (1769-1985°F)
<i>Physical State:</i>	Solid	<i>Specific Gravity (g/cc):</i>	8.94
<i>pH:</i>	Not applicable	<i>Bulk Density:</i>	8.94 g/cc
<i>Vapor Pressure (mm Hg):</i>	Not applicable	<i>Viscosity (cps):</i>	Not applicable
<i>Vapor Density:</i>	Not applicable	<i>Decomposition Temperature:</i>	Not applicable
<i>Solubility in Water (20 °C):</i>	Negligible	<i>Evaporation Rate:</i>	Not applicable
<i>Volatiles, Percent by volume:</i>	Not Applicable	<i>Octanol/water partition coefficient:</i>	Unknown

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10. STABILITY AND REACTIVITYSTABILITY:CONDITIONS TO AVOID:MATERIALS TO AVOID:HAZARDOUS DECOMPOSITION PRODUCTS:HAZARDOUS POLYMERIZATION:

Stable under normal temperatures and pressure

Not affected by mechanical impact or shock or by electrical discharge.

Acetylene, chlorine

When heated to decomposition, may produce metal oxides and fumes. Inhalation of high concentrations of metal fumes may cause a condition known as "metal fume fever" which is characterized by flu-like symptoms.

Will not occur.

11. TOXICOLOGICAL INFORMATION*POTENTIAL EXPOSURE ROUTES:* For dust: ingestion, inhalation, and eye contact. For fume: inhalation and eye contact. The finished alloy metal is not hazardous*ACUTE ANIMAL TOXICITY DATA:*

For Product:		For Components	
The toxicological properties of this product have not been thoroughly investigated.		Copper	Boron
Oral LB ₅₀	Believed to be > 5 g/kg	3.5 mg/kg (mouse, intraperitoneal)	650 mg/kg (rat)
Dermal LB ₅₀	Believed to be > 2 g/kg	375 mg/kg (rabbit, subcutaneous)	No data
Inhalation LC ₅₀	Believed to be slightly to moderately toxic	No data	No data
Irritation	Eye and respiratory irritant, sensitizer	Respiratory irritant	No data

SUBCHRONIC/ CHRONIC TOXICITY:CARCINOGENICITY:

No information for product.

This product is not known or reported to be carcinogenic by IARC, NTP, OSHA, or EPA.

MUTAGENICITY:REPRODUCTIVE, TERATOGENICITY OR DEVELOPMENTAL EFFECTS:

This product is not known or reported to be mutagenic.

This product is not known or reported to cause reproductive or developmental effects. Boron in the form of boric acid has caused testicular damage and reproductive effects in laboratory animals. This product is not known or reported to cause neurological effects.

NEUROLOGICAL EFFECTS:INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:

None known or reported.

12. ECOLOGICAL INFORMATION*ECOTOXICITY:* No data is available on this product. Individual constituents are as follows:

Copper: The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentrations varying from 0.1 to 1.0 mg/l have been found by various investigators to be not toxic for most fish. However, concentrations of 0.015 to 3.0 mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustaceans, mollusks, insects, and plankton.

MOBILITY:

No data

PERSISTENCE/DEGRADABILITY:

No data

BIOACCUMULATION:

No data

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13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes. This product may be a candidate for metal reclamation.

14. TRANSPORT INFORMATION

	U.S. DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
PROPER SHIPPING NAME:	Not regulated					
HAZARD CLASS:						
UN NO.:						
PACKING GROUP:						
LABEL:						
REPORTABLE QUANTITY:						

15. REGULATORY INFORMATION*US FEDERAL*

TSCA	The components of this product are listed on the Toxic Substance Control Act inventory.				
CERCLA:	Copper, R.Q.= 5000 lbs. (No reporting is required if diameter of the pieces of metal is equal to or exceeds 100 micrometers (0.004 inches).				
SARA 313:	Copper				
SARA 313 Hazard Class:	<u>Health:</u> For dust or fume only	Acute – Yes, Chronic – No	<u>Fire:</u> None	<u>Reactivity:</u> None	<u>Release of Pressure:</u> None
SARA 302 EMS List:	None of the components of this product are listed.				

*RQ- Reportable Quantity

STATE RIGHT-TO-KNOW STATUS

Component	*CA Prop. 65	New Jersey	Pennsylvania	Massachusetts	Michigan
Copper	Not listed	X	X	X	X

EUROPEAN REGULATIONS

This material in its massive solid form is not required to be labeled under EC regulations.

German WGK Classification: Not classified

CANADIAN REGULATIONS

DSL LIST: The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.

IDL: Copper

WHMIS: This product is considered to be a manufactured article and therefore not subject to WHMIS requirements.

NOTE: The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, Precision Brand Products, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular period. Accordingly, Precision Brand Products, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information. NO REPRESENTATIONS, OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER TO WHICH THE INFORMATION REFERS. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.

REVISIONS: Update to composition 1/1/04