

**MATERIAL SAFETY DATA SHEET**

Issue Date: 30-July-2008  
 Identification Number: MSDS # 001

Product: **HBZ-U,HBZ-K,HBZ-MU Wire(60/40Brass)**  
 (Brass wire)  
 Supplier: **Hitachi Cable Fine Tech, Ltd.**  
 4-10-1 Kawajiri-cho, Hitachi-shi, Ibaraki-ken 319-1414  
 Phone: 0294-42-5907 Fax: 0294-43-6169

**SECTION 1 – MATERIAL IDENTIFICATION AND USE**

Material Name: Brass wire  
 Chemical Name: NOT APPLICABLE  
 Chemical Formula: Copper and Zinc  
 DOT Identification Number: NOT APPLICABLE

**SECTION 2 – HAZARDOUS INGREDIENTS OF MATERIAL**

ELEMENT	%	RISK	SYMBOLE	CAS NO.	VLE-VME
Copper	59.0 – 62.0	N.A.	C u	7440-50-8	N.A.
Zinc	Residue	N.A.	Z n	7440-66-6	N.A.

**SECTION 3 – PHYSICAL DATA FOR MATERIAL**

At Normal Condition: **SOLID**  
 Appearance and Odor: **COLOR: Bronze; NO ODOR**  
 Boiling Point: Cu 2595° C, Zn 906° C  
 Melting Point: 1083° C, 420° C  
 Specific Gravity (H<sub>2</sub>O=1): 8.39  
 Solubility in Water (% by weight): Nil  
 Vapor Density: N.A.  
 Vapor Pressure: N.A.

**SECTION 4 – PERSONAL PROTECTIVE EQUIPMENT**

Appropriate personal protective equipment is required when melting, casting, machining, forging, cutting, or otherwise processing.  
 The nature of the processing activity will determine what form of equipment is necessary; i.e., glasses, respirator, protective clothing, and ear protection.

**SECTION 5 – EMERGENCY MEDICAL PROCEDURES**

For Skin Contact: Remove particles by thoroughly washing with soap and water.  
 For Eye Contact: Flush with water for at least 15 minutes. Get medical attention if irritation persists.  
 For Inhalation: Remove from exposure. Get medical attention if experiencing breathing difficulty.

**SECTION 6 – HEALTH/SAFETY INFORMATION**

[HEALTH]  
 INHALATION Not likely  
 INGESTION Not likely  
 SKIN Lubricants are listed in the International Agency for Research on Cancer Monograph on Mineral Oils. It's presence in this product is not expected to present a carcinogenic risk due to the low concentration in which it is present.  
 EYES May irritate eyes when welding or cutting.

Threshold Limit Value: See section 2, HAZARDOUS INGREDIENTS OF MATERIAL			
[FIRE AND EXPLOSION]			
Flash Point: Not Flammable	Auto Ignition Temperature(°C): NA	Flammable Limits in Air: Lower NA % Upper NA %	Extinguishing Media: Dry power or sand
Unusual Fire and Explosion Hazards: Damp material dust may spontaneously heat with liberation of hydrogen to form explosive air mixtures. See additional information.		Extinguishing Media not to be used: Do not use water, halogen, or dust fires.	
[REACTIVITY]			
Stability: STABLE	Incompatibility (Materials to Avoid): ANHYDROUS BROMINE		
Conditions to Avoid: See Fire and Explosion Section and ADDITIONAL INFORMATION.			
SECTION 7 – ADDITIONAL INFORMATION			
<ol style="list-style-type: none"> <li>1. Acids and bases in contact with brass surface may generate explosive mixtures with hydrogen.</li> <li>2. Finely divided brass may form explosive mixture in air. It will also form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate.</li> <li>3. When re-melting brass scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in sow cavities as well. Moisture must be driven off prior to re-melting.</li> <li>4. Do not touch cast brass metal or heated product without knowing the metal temperature. If metal is hot and is touched, burns can result.</li> </ol>			

**MATERIAL SAFETY DATA SHEET**

Issue Date: 30-July-2008  
 Identification Number: MSDS # 002

Product: <b>ABZ Wire(65/35Brass)</b> (Brass wire)	Supplier: <b>Hitachi Cable Fine Tech, Ltd.</b> 4-10-1 Kawajiri-cho, Hitachi-shi, Ibaraki-ken 319-1414 Phone: 0294-42-5907 Fax: 0294-43-6169
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**SECTION 1 – MATERIAL IDENTIFICATION AND USE**

Material Name: Brass wire		
Chemical Name: NOT APPLICABLE	Chemical Formula: Copper and Zinc	DOT Identification Number: NOT APPLICABLE

**SECTION 2 – HAZARDOUS INGREDIENTS OF MATERIAL**

ELEMENT	%	RISK	SYMBOLS	CAS NO.	VLE-VME
Copper	63.0 – 67.0	N.A.	C u	7440-50-8	N.A.
Zinc	Residue	N.A.	Z n	7440-66-6	N.A.

**SECTION 3 – PHYSICAL DATA FOR MATERIAL**

At Normal Condition: <b>SOLID</b>	Appearance and Odor: <b>COLOR: Bronze; NO ODOR</b>
Boiling Point Cu 2595° C Zn 907° C	Melting Point 1083° C 420° C
Specific Gravity (H <sub>2</sub> O=1) 8.47	Vapor Density: N.A. Vapor Pressure: N.A.
Solubility in Water (% by weight) Nil	

**SECTION 4 – PERSONAL PROTECTIVE EQUIPMENT**

Appropriate personal protective equipment is required when melting, casting, machining, forging, cutting, or otherwise processing.  
 The nature of the processing activity will determine what form of equipment is necessary; i.e., glasses, respirator, protective clothing, and ear protection.

**SECTION 5 – EMERGENCY MEDICAL PROCEDURES**

For Skin Contact: Remove particles by thoroughly washing with soap and water.  
 For Eye Contact: Flush with water for at least 15 minutes. Get medical attention if irritation persists.  
 For Inhalation: Remove from exposure. Get medical attention if experiencing breathing difficulty.

**SECTION 6 – HEALTH/SAFETY INFORMATION**

[HEALTH]

INHALATION	Not likely
INGESTION	Not likely
SKIN	Lubricants are listed in the International Agency for Research on Cancer Monograph on Mineral Oils. It's presence in this product is not expected to present a carcinogenic risk due to the low concentration in which it is present.
EYES	May irritate eyes when welding or cutting.

Threshold Limit Value: See section 2, HAZARDOUS INGREDIENTS OF MATERIAL			
<b>[FIRE AND EXPLOSION]</b>			
Flash Point: Not Flammable	Auto Ignition Temperature(°C): NA	Flammable Limits in Air: Lower NA % Upper NA %	Extinguishing Media: Dry power or sand
Unusual Fire and Explosion Hazards: Damp material dust may spontaneously heat with liberation of hydrogen to form explosive air mixtures. See additional information.		Extinguishing Media not to be used: Do not use water, halogen, or dust fires.	
<b>[REACTIVITY]</b>			
Stability: STABLE	Incompatibility (Materials to Avoid): ANHYDROUS BROMINE		
Conditions to Avoid: See Fire and Explosion Section and ADDITIONAL INFORMATION.			
<b>SECTION 7 – ADDITIONAL INFORMATION</b>			
<ol style="list-style-type: none"> <li>1. Acids and bases in contact with brass surface may generate explosive mixtures with hydrogen.</li> <li>2. Finely divided brass may form explosive mixture in air. It will also form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate.</li> <li>3. When re-melting brass scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in sow cavities as well. Moisture must be driven off prior to re-melting.</li> <li>4. Do not touch cast brass metal or heated product without knowing the metal temperature. If metal is hot and is touched, burns can result.</li> </ol>			