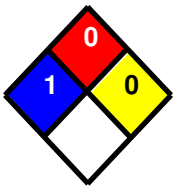
IWG High Performance Conductors, Inc.

HPC-80EF™ Copper Alloy

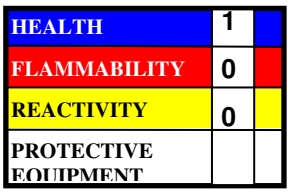
Various forms: rod, wire

Date Revised: May 25, 2006

MATERIAL SAFETY DATA SHEET



NFPA RATING



HMIS RATING

SECTION I. PRODUCT AND COMPANY IDENTIFICATION

Product Name: HPC-80EF™ Copper Alloy
Chemical Family: Alloy

Manufacturer/Vendor Information:
IWG High Performance Conductors
1570 Campton Road
Inman, SC 29349

24-Hour Emergency Phone: (800)424-9300
Chemtrec
Other Information Phone: (864)472-0481
FAX: (864)472-3381

SECTION II. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	EINECS No.	Chemical Name	Exposure Limits	% by wt.
7440-50-8	231-159-6	Copper	ACGIH TWA: 1 mg/m³ (dusts & mists) ACGIH TWA: 0.2 mg/m³ (fume) OSHA PEL TWA: 1 mg/m³ (dust) OSHA PEL TWA: 0.1 mg/m³ (fume) UK WEL TWA: 1 mg/m^3 (dust & fume) UK WEL TWA: 0.2 mg/m^3 (fume)	99 + <1
7439-95-4	231-104-6	Magnesium	None Established	

SECTION III. HAZARDS IDENTIFICATION

Emergency Overview: Odorless, reddish-yellow metal, various shapes. **In solid form this material does not present a significant hazard to people.**

Note: Grinding, melting, welding, cutting, or any other operation that reduces the particle size of this material will change the hazard classification of the product. If the particle size or oxidation state of this product is reduced, refer to the applicable regulatory standards for appropriate protective measures.

Dust or fumes may cause irritation of the eyes, skin and respiratory tract.

Route(s) of Entry: Inhalation, eye and ingestion of dust or fume.

Acute Exposure: Dust or fume may cause irritation.

Chronic Exposure: Rare except in individuals with Wilson's disease.

Carcinogenicity (NTP) (IARC) (OSHA): Not listed.

Eye: Dust or fume may cause eye irritation.

Skin Contact: Dust may cause skin irritation.

Inhalation: Dust or fume may cause nose, throat, and respiratory tract irritation. Metal fume fever has been associated with metals such as zinc, magnesium, aluminum, antimony, iron, manganese, mercury, nickel and tin. However, there is insufficient evidence to conclude that exposures to copper dust and copper fume cause metal fume fever. Symptoms of metal fume fever include muscular pains, sudden onset of chills, weakness, fatigue, nausea, vomiting headache diarrhea and onset may be delayed for several hours.

Ingestion: May cause stomach irritation.

Signs and Symptoms: Upper respiratory irritation accompanied by coughing, dryness of mucous membranes.

SECTION IV. FIRST AID MEASURES

Eyes: If dust or fume contacts the eyes, flush with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

Skin: Wash with soap and water. Get medical attention if irritation develops or persists.

Ingestion: If swallowed, induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Inhalation: If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

Note to Physician: Wilson's Disease or G6PD deficiency causes individuals to absorb, retain, and store copper excessively, leading to copper toxicosis.

SECTION V. FIRE FIGHTING MEASURES

Flash Pt:	Not applicable
Flammable Limits in Air – Lower:	Not applicable
Flammable Limits in Air – Upper:	Not applicable
Auto Ignition Temperature:	Not applicable
Fire Fighting Extinguishing Media:	Does not support combustion. Use media as appropriate for surrounding material.
Fire Fighting Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area and fight fire from a safe distance. Avoid direct water stream on molten material. Molten form explodes upon contact with water. Copper powder is a moderate fire hazard.
Fire and Explosion Hazards:	None.
Unusual Hazards:	Toxic gases and vapors may be released in a fire. In the presence of halogenates, copper powder may be explosive with heat, percussion, or light friction. On long standing a white deposit, which is a readily, explosive peroxide, may form. In the presence of wet acetylene and ammonia, copper forms explosive acetylides

SECTION VI. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Use clean-up methods that avoid dust generation (vacuum, wet). Wear a NIOSH approved respirator if dust will be generated in clean-up.

SECTION VII. HANDLING AND STORAGE

Handling Information: Follow all applicable local or national regulations for clean-up. Minimize dust generation and accumulation. Avoid breathing dust or fume.

Storage Information: Store in closed containers in a secure dry place. Do not store near strong acids, bases or oxidizing agents or incompatible materials described in Section X.

SECTION VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: If user operations generate dust or fume, use ventilation to keep exposure to airborne contaminants below the exposure limits.

Eye Protection: If user operations generate dust or fume use safety glasses with side-shields or goggles.

Skin Protection: Use protective clothing to prevent repeated or prolonged skin contact.

Respiratory Protection: A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. For concentrations up to 10 times the exposure limit, use NIOSH or MSHA approved half- or full-face, air-purifying respirator. For higher concentrations, consult a professional industrial hygienist.

SECTION IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Reddish-yellow metal, various shapes
Melting Point:	Copper: 1083°C Magnesium: 649°C
Flash Point:	Not available
Boiling Point:	Copper: 2595°C Magnesium: 1100°C
Decomposition Temperature:	Not available
Density/Specific Gravity:	8.94
Vapor Pressure:	Copper: 1 mm Hg at 1628°C; 20 mm Hg at 1970°C Magnesium: 1 mm Hg at 621°C
Heat of Vaporization:	1150 Cal/g
Solubility in Water:	Insoluble
Molecular Weight:	63.54

SECTION X. STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and pressures

Incompatibility: Copper is potentially explosive with acetylinic compounds, 3-bromopropene, ethylene oxide, lead azide, and ammonium nitrate. Ignites on contact with chlorine, fluorine, and hydrazinemononitrate. Reacts violently with sodium azide, halogenates, peroxides, hydrogen sulfide, hydrozoic acid, bromates, chlorates, iodates, chloride and potassium oxide. Avoid contact with strong acids.

Hazardous Decomposition Products: High temperatures associated with smelting or welding releases metal oxide fumes.

Hazardous Polymerization: Will not occur.

SECTION XI. TOXICOLOGICAL/ECOLOGICAL INFORMATION

Toxicology Tests

Copper:

Test : 1

LD/LC : LD_{50}

Test Type : Acute

Test Route : Intraperitoneal

Test Species : Mouse

Results Amounts : 3.5 mg/kg

Inhalation Toxicity: Scientific evidence does not indicate that exposure to copper dust or fume causes upper respiratory irritation in a manner that is different than that following high-dose exposure to other non-specific irritants.

Reproduction: Female rats 22 weeks prior to mating, oral route, dose 1520 µg /kg—specific developmental abnormalities (musculoskeletal system). At 152 mg/kg effects included stunted fetus and central nervous system. Female rats 35 weeks prior to mating, oral route, 1210 µg /kg—effects on fertility (pre- and post-implantation mortality) (RTECS).

Additional Information: There are no human data and inadequate animal data (HSDB) for carcinogenicity.

Ecological Data:

None has been developed for this material.

SECTION XII. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

SECTION XIII. TRANSPORT INFORMATION

	Proper Shipping Name:	Technical Name (If N.O.S.):	Hazard Class:	ID:	PG:
DOT:	Not Regulated				

SECTION XIV. REGULATORY INFORMATION

US Federal

Federal Drinking Water Standards: EPA 1300µg/L.
CERCLA: RQ 5000 lbs, subject to size limitations (see 40 CFR 302.4)
RCRA: Not listed
Clean Water Act: Designated as a toxic pollutant and is subject to effluent limitations.
EPCRA, SARA Title III, SECTION 313 (chemicals subject to reporting requirements, see Section II for CAS number and percentage in mixture): Reporting required if concentration is >1% for copper
CERCLA Hazardous Substances: No reporting is required if diameter of the pieces of solid material is ≥ 100 mm (0.04 inches) for copper and no RQ is assigned to the broad class of copper compounds.
Clean Air Act: Not on HAPs list
DOT: See Section XIII TRANSPORT INFORMATION.

Chemical Family:	Alloy	
Substance:	HPC-80EF™ Copper Alloy	
CAS No.:	Copper:	7440-50-8
	Magnesium:	7439-95-4
EINECS No.:	Copper:	231-159-6
	Magnesium:	231-104-6
Risk Phrases:	None Required *	
Safety Phrases:	None Required *	

* Note: Grinding, melting, welding, cutting, or any other operations that reduce the particle size of the material may change the Risk Phrases and Safety Phrases of the product.

SECTION XV. OTHER INFORMATION

Reason for Revision:	New MSDS
Prepared By:	Environmental Health & Safety IWG High Performance Conductors, Inc.