



High Performance Conductors, Inc.
A SUBSIDIARY OF IWG

SAFETY DATA SHEET



Ecological



Health



NFPA RATING

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
PROTECTIVE EQUIPMENT	

HMIS RATING

SECTION 1. IDENTIFICATION

Product Name: Bare and Insulated Wire; all bare and insulated wire products supplied by IWG HPC.
Recommended Uses: Wiring for electrical devices.
Use Restriction: None.

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

24-Hour Emergency Phone: (864) 472-0555

Other Information Phone: (864) 472-0481

FAX: (864) 472-3381

SECTION 2. HAZARDS IDENTIFICATION

Chemical Classification: Metal.

Signal Word: Warning.

Hazard Statement: Specialty bare and insulated wire is generally not considered hazardous in the form shipped or when used for its intended purpose; which is the conveyance of electrical charge. However, the installation of bare and insulated wire into products can release metallic fume and decomposed resin to the atmosphere; which may have health or safety impacts. The following statements reflect installation hazards:

H302 – Harmful if swallowed.

H312 – Harmful in contact with skin.

H315 – Causes skin irritation.

H332 – Harmful if inhaled.

H335 – May cause respiratory irritation.

Note: Grinding, melting, welding, cutting, or any other operation(s) that reduces the particle size of the 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 protection measures.

Pictogram: Ecological, Health.

Precautionary Statement:

P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.

P262 – Do not get in eyes, on skin, or on clothing.

P337 + P313 – If eye irritation persists: Get medical advice/attention.

May irritate eyes.

Contact with fine particles may irritate skin.

May be irritating to the nose, throat, and respiratory tract.

May be irritating to the stomach.

Hazards Not Otherwise Classified: Not applicable.

Mixture of Ingredients with Unknown Toxicity: Not applicable.

Emergency Overview: See Appendices A-1, A-2, B, and C for exposure limits to specific hazardous ingredients. Under normal use there is no hazard, but thermal decomposition can release toxic vapors, gases, or fumes.

Effects of Overexposure:

Eye: Dust or fume may cause eye irritation.

Skin Contact: Dust may cause skin irritation.

Specialty bare and insulated wire is generally not considered hazardous in the form shipped. However, if your process involves grinding, melting, welding, cutting, or any other process that causes a release of dust, vapors, gas, or fumes the following adverse effects may result:

Route(s) of Entry: Ingestion or inhalation and may cause skin dysfunction including discoloration.

Acute Exposure: "Metal Fume Fever" from welding is characterized by metallic taste in mouth; irritation of eyes, nose, throat, and skin; (flu-like symptoms) nausea, tightness of chest; loss of consciousness or even death due to welding gases or lack of oxygen. 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.

Chronic Exposure: skin sensitization; neurological damage; respiratory disease; and kidney dysfunction.

Carcinogenicity: NTP – (Chromium VI) Known Carcinogen, (Beryllium, Cadmium, Nickel) Reasonably Anticipated Carcinogen; IARC – (Beryllium, Cadmium, Chromium VI) Group 1 Carcinogen; OSHA – (Cadmium).

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	Chemical Name	Weight Percent (%)
	Conductor (see attached Appendix A-1 and A-2)	
	Insulation (see attached Appendix B or C)	

SECTION 4. FIRST-AID MEASURES

Initial Care:

Eyes: Flush eyes with plenty of water for at least 15 minutes.

Skin: Wash with soap and water. Flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists seek medical attention.

Ingestion: If conscious, give water. Consult a physician.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

Symptoms or Effects:

Eyes: Irritation.

Skin: Irritation.

Ingestion: Irritation.

Inhalation: Irritation.

Immediate Medical Care and Special Treatment: Wash or irrigate as necessary. Wilson's Disease (an inherited disorder in which copper accumulates in the liver leading to copper toxicosis) may result from exposure; pre-existing dermatitis may be aggravated.

SECTION 5. FIRE-FIGHTING MEASURES

NFPA Hazard Classification:

Health Hazard: 1 Fire Hazard: 0 Reactivity: 0

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:

Water fog, foam, dry chemical, CO₂.

Fire Extinguishing Equipment: As in any fire, wear approved or equivalent MSHA/NIOSH self-contained breathing apparatus pressure-demand and full protective gear.

Fire Fighting Instructions: Evacuate area and fight fire from a safe distance.

Fire and Explosion Hazards: Will not burn, will not explode.

Unusual Hazards: Heavy airborne concentrations of fine powder in enclosed spaces may ignite or explode in the presence of sources of ignition. 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 6. ACCIDENTAL RELEASE MEASURES

Fire Extinguishing Equipment: As in any fire, wear approved or equivalent MSHA/NIOSH self-contained breathing apparatus pressure-demand and full protective gear.

Fire Fighting Instructions: Evacuate area and fight fire from a safe distance.

Fire and Explosion Hazards: Will not burn, will not explode.

Unusual Hazards: Use clean-up methods that avoid dust generation (vacuum wet). Wear a NIOSH approved respirator if dust will be generated in clean up. Use protective clothing if skin contact is likely.

SECTION 7. HANDLING AND STORAGE

Signal Word: Warning.

Handling Precautions: Not hazardous with normal use.

Storage Recommendations: Do not store near acetylene, chlorine, hydrogen peroxide, or acids.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA Permissible Exposure Limit: See Appendix A-2.

Engineering Controls: None required in normal use.

Protective Devices:

Eye Protection: Safety glasses with side shields.

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

Respiratory Protection: None required in normal use. If dust or vapors are created and workplace conditions warrant respirator use, a respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed. For concentrations up to 10 times the exposure limit, use NIOSH or MSHA approved half- or full-face, air-purifying respirator with appropriate particulate cartridges. For higher concentrations, consult a professional industrial hygienist. The American Conference of Governmental Industrial Hygienists (ACGIH) 8-hour time-weighted average (TWA), threshold limit value (TLV) for welding fume (total particulate) is 5 mg/m³.

Ventilation: General ventilation is recommended. Local exhaust recommended if dust, mist, or fumes are being generated.

Special Protective Device Requirements: Not applicable.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid metals shaped as wire, strip, or ribbon with various insulation colors.
Odor:	N/A
Odor Threshold:	N/A
pH:	N/A
Melting Point/Freezing Point:	Varies depending on the type of conductor and resin coating.
Initial Boiling Point:	N/A
Boiling Point Range:	N/A
Flash Point:	N/A
Evaporation Rate:	N/A
Flammability (solid, gas):	N/A
Upper/Lower Explosive Limits:	N/A
Vapor Pressure:	N/A
Vapor Density:	N/A
Relative Density:	Copper Alloy: 8.94 g/cm ³
Solubility in Water:	Insoluble
Partition Coefficient (n-octanol/water):	N/A
Auto-ignition Temperature:	N/A
Decomposition Temperature:	N/A
Viscosity:	N/A

SECTION 10. STABILITY AND REACTIVITY

Reactivity: Non-reactive.

Chemical Stability: Stable. Decomposition products may evolve when heated.

Other:

Hazardous Reactions: Not applicable.

Incompatible Conditions: Incompatible with oxidizing agents.

Incompatible Chemicals: Resistant to a wide variety of chemicals. It is soluble in strong acids and bases. It is infusible. 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: May include carbon monoxide, ozone, and oxides of nitrogen. Polyurethanes used as insulation may also emit isocyanate derivatives upon decomposition.

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Exposure Routes

Eyes, skin, ingestion, inhalation.

Exposure Effects

Delayed: Not applicable.

Immediate: Eyes, skin, ingestion, inhalation.

Chronic: Not applicable.

Toxicity (*Copper*) 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. (*Chrome III*) Chrome III is minimally absorbed through inhalation; skin absorption is minimal; may cause asthmatic response due to localized irritation. (*Silver*) 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.

Symptoms

Eyes: Irritation.

Skin: Irritation.

Ingestion: Irritation.

Inhalation: Irritation.

National Toxicology Program Listing

Not applicable.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity Test Information: See below.

Aquatic Organisms: Not available.

Terrestrial Organisms: Not available.

Plants: Not available.

Toxicity Test Information:

LD50: Copper

Test Type: Acute

Test Species: Mouse

Test Route: Intraperitoneal

LD₅₀: 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 mice 22 weeks prior to mating, via an oral route, a dose of 1,520 µg/kg produces specific developmental abnormalities (musculoskeletal system). At 152 mg/kg effects included stunted fetus and central nervous system. Female mice 35 weeks prior to mating, via an oral route, a dose of 1,210 µg/kg produces effects on fertility (pre- and post-implantation mortality) (RTECS).

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

LD50: Chromium

Test Species: Not available.

Test Route: Oral

LD₅₀: Not available.

LD50: Silver

Test Species: Not available.

Test Route: Oral

LD₅₀: Not available.

Aquatic Organisms: Not available.

Terrestrial Organisms: Not available.

Plants: Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

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

Appropriate Disposal Containers: Not limited.

Appropriate Disposal Methods: Recycling.

Physical and Chemical Properties Affecting Disposal Activities: Metal concentration limited.

Sewage Disposal Limits: Metal concentration limited.

Landfill Disposal Limits: Metal concentration limited.

Incineration Disposal Limits: Metal concentration limited.

SECTION 14. TRANSPORT INFORMATION

DOT:	<u>Proper Shipping Name:</u>	<u>Technical Name (If N.O.S.):</u>	<u>Hazard Class:</u>	<u>ID:</u>	<u>PG:</u>
	Not Regulated				
	UN Number:	Wire.			Not applicable.
	UN Shipping Name:				
	Transport Hazard Class:				
	Packing Group Number:				
	Marine Environmental Hazards:				
	Bulk Transport Limits:				
	Any Special Precautions:				

SECTION 15. REGULATORY INFORMATION**US Federal Programs:**

SARA Title III: This product may contain one or more of the following toxic chemicals subject to reporting requirements of Section 313: aluminum (fume or dust), beryllium, cadmium, chromium, copper, manganese, nickel, platinum, silicon, silver, tin, or zinc (fume or dust).

CERCLA: Not Listed

RCRA: This product may contain one or more of the following chemicals subject to reporting requirements of RCRA: cadmium, chromium, or silver.

TSCA: This product may contain one or more of the following toxic chemicals subject to reporting requirements of TSCA: aluminum, beryllium, cadmium, chromium, copper, manganese, nickel, platinum, silicon, silver, tin, or zinc.

SECTION 16. OTHER INFORMATION

Prepared By: IWG High Performance Conductors Environmental Health and Safety Department

Disclaimer: This information is based on available scientific evidence known to IWG High Performance Conductors. It is provided solely for compliance to the Hazard Communication Standard as revised in 2012. This information is furnished without warranty, expressed or implicit.

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