

SAFETY DATA SHEET

COPPER BRIDGE | ER70S-6 Solid MIG Welding Wire

Conforms to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard 29 CFR 1910.1200.
SDS No.: CB-ER70S6-NA-EN | Revision: 1

SECTION 1 - IDENTIFICATION OF PRODUCT AND COMPANY

Field	Information
Product identifier	ER70S-6 Solid MIG Welding Wire
Other identification	AWS A5.18 / ASME SFA-5.18 Class ER70S-6; GB/T 8110-2020 Class G49A3C1S6
Recommended use	Gas metal arc welding of mild and low-alloy steels
Restrictions on use	Use only by trained personnel with suitable welding equipment, ventilation, and personal protective equipment
Supplier	Copper Bridge LLC
Address	766 Palmyrita Ave, Suite A, Riverside, CA 92507, USA
Website	www.copperbridgeusa.com
Telephone	+1 909-619-3545
Emergency telephone	CHEMTREC US/Canada: +1 800-424-9300
Manufactured by	Jinlong Welding Electrode Co., Ltd., Dingzhou, Hebei, China
Trade Name of Carbon Steel:	Specification:
ER70S-6 Solid MIG Welding Wire	AWS A5.18

SECTION 2 - HAZARD IDENTIFICATION

OSHA GHS classification: Not classified as hazardous as shipped under applicable OSHA GHS classification criteria.

Label elements: No pictogram. No signal word. No hazard statement required for the product as shipped.

Hazards not otherwise classified and hazards during use: Normal welding use changes the product and can create hazards that are not represented by the classification of the solid wire.

- Welding fumes and gases may be hazardous. Their composition depends on this wire, the base metal, coatings, shielding gas, process settings, ventilation, and contaminants in the work area.
- Short-term overexposure may cause eye, nose, and throat irritation, dizziness, nausea, or metal fume fever. Prolonged manganese fume exposure may damage the nervous system; prolonged iron oxide exposure may cause siderosis.
- Arc radiation can injure eyes and burn skin. Electric shock can kill. Hot metal, sparks, and slag can cause burns and ignite combustible materials.
- Shielding gases can displace oxygen, especially in confined spaces. Arc processes may form carbon monoxide, ozone, and nitrogen oxides.

Supplemental precautions: Read and understand the welding equipment instructions, this SDS, and workplace safety procedures. Keep the head out of fumes. Use local exhaust and general ventilation. Wear appropriate welding eye, face, hand, body, hearing, and respiratory protection. Remove combustibles and provide fire watch when required.

SECTION 3 - COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical nature: Copper-coated carbon steel alloy wire. Composition ranges are based on the supplied ER70S-6 technical data and AWS A5.18 specified limits.

Component	CAS number	Weight percent	Function or note
Iron	7439-89-6	Balance	Principal alloy constituent
Manganese	7439-96-5	1.40-1.85	Deoxidizer and alloying element
Silicon	7440-21-3	0.80-1.15	Deoxidizer and alloying element
Carbon	7440-44-0	0.06-0.15	Alloying element
Copper	7440-50-8	0-0.50	Includes copper coating
Chromium	7440-47-3	0-0.15	Residual maximum
Nickel	7440-02-0	0-0.15	Residual maximum
Molybdenum	7439-98-7	0-0.15	Residual maximum
Vanadium	7440-62-2	0-0.03	Residual maximum
Phosphorus	7723-14-0	0-0.025	Residual maximum



Component	CAS number	Weight percent	Function or note
Sulfur	7704-34-9	0-0.025	Residual maximum

Composition note: Actual batch composition may vary within the stated limits. Welding fumes are not compositionally identical to the solid wire and may include metal oxides and constituents from the base metal and coatings.

SECTION 4 - FIRST AID MEASURES

Inhalation: Move the affected person to fresh air. Keep at rest in a position comfortable for breathing. If breathing is difficult, trained personnel may administer oxygen. If breathing has stopped, begin CPR with a barrier device and obtain emergency medical assistance. Seek medical attention for persistent symptoms or suspected overexposure.

Eye contact: For particles or fume, rinse cautiously with clean water for at least 15 minutes, removing contact lenses if easy to do. Do not rub the eyes. For arc-flash symptoms or persistent irritation, obtain prompt medical evaluation.

Skin contact: Wash dust from skin with soap and water. Remove contaminated clothing. For thermal burns, cool with clean running water; do not apply ice or remove material adhering to skin. Obtain medical attention for significant burns or persistent irritation.

Ingestion: Not an expected route of exposure. Rinse mouth. Do not induce vomiting. Contact a poison center or physician if a significant quantity of dust or residue is swallowed or symptoms develop.

Most important symptoms and effects: Acute effects may include respiratory irritation, coughing, dizziness, nausea, and metal fume fever. Delayed or repeated overexposure may affect the lungs and nervous system. Arc radiation may cause painful eye inflammation and skin burns.

Immediate medical attention and special treatment: Treat symptomatically. Inform medical personnel that welding fume and gas exposure may have occurred.

SECTION 5 - FIRE FIGHTING MEASURES

Suitable extinguishing media: The solid wire is not combustible. Use extinguishing media appropriate for the surrounding fire.

Unsuitable media: Do not apply water directly to molten metal. Avoid halogenated extinguishing agents on hot or molten metal unless specifically approved for that application.

Specific hazards: Welding arcs and sparks can ignite nearby combustibles. Containers and spools may burn. Hot or molten metal can react violently with water. Welding fumes and gases may be hazardous.

Firefighter protection: Wear full protective clothing and positive-pressure self-contained breathing apparatus when smoke, fumes, or oxygen-deficient conditions may be present. Isolate the area and cool exposed packaging from a safe distance.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Solid wire presents no conventional spill hazard. Wear gloves to avoid cuts and use safe lifting practices for spools or drums. Avoid creating or breathing dust from damaged, ground, or abraded material.

Environmental precautions: Prevent metal fines and cleanup residues from entering drains, soil, or surface water.

Containment and cleanup: Collect intact wire mechanically and return it to a suitable container. Use a HEPA-filtered vacuum or wet cleanup method for fine particulate where appropriate; do not dry sweep airborne dust. Allow hot or molten material to cool and solidify before recovery. Recycle clean metal scrap when possible.

SECTION 7 - HANDLING AND STORAGE

Safe handling: Use only with adequate ventilation and appropriate welding controls. Avoid contact with sharp wire ends and moving feed equipment. Keep hands, clothing, food, and beverages free from dust and residues. Wash hands after handling. Do not eat, drink, or smoke in welding areas.

Safe storage: Store in the original labeled package in a cool, dry, well-ventilated location. Protect from moisture, physical damage, acids, strong oxidizers, and halogens. Secure spools and bulk packages against movement or falling. Keep away from combustible materials during hot work.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters: Air contaminants generated during welding must be evaluated for the actual process and materials. The following federal OSHA limits are relevant to likely fume constituents or alloy components. More protective state, local, or employer limits may apply.

Substance or fume constituent	CAS number	Federal OSHA PEL	Basis
Iron oxide fume	1309-37-1	10 mg/m3 TWA	As iron oxide fume
Manganese compounds and fume	7439-96-5	5 mg/m3 ceiling	As manganese
Copper fume	7440-50-8	0.1 mg/m3 TWA	As copper
Copper dusts and mists	7440-50-8	1 mg/m3 TWA	As copper
Chromium metal and insoluble salts	7440-47-3	1 mg/m3 TWA	As chromium
Hexavalent chromium compounds	various	0.005 mg/m3 TWA	As chromium; 29 CFR 1910.1026



Substance or fume constituent	CAS number	Federal OSHA PEL	Basis
Nickel metal and insoluble compounds	7440-02-0	1 mg/m3 TWA	As nickel
Molybdenum soluble compounds	7439-98-7	5 mg/m3 TWA	As molybdenum
Molybdenum insoluble compounds	7439-98-7	15 mg/m3 TWA	Total dust, as molybdenum
Particulates not otherwise regulated	not assigned	15 mg/m3 total; 5 mg/m3 respirable	8-hour TWA

Engineering controls: Use local exhaust at the arc and adequate general ventilation to keep fumes and gases below applicable limits and oxygen at safe levels. Position exhaust so fumes move away from the breathing zone. Keep the welder's head out of the plume. Use exposure monitoring to verify controls, especially for confined spaces, coated or plated base metal, stainless or high-alloy base metal, and multiple-welder operations.

Respiratory protection: When ventilation cannot keep exposure below applicable limits, use a NIOSH-approved respirator selected by a qualified person for the measured contaminants and used under a complete respiratory protection program meeting 29 CFR 1910.134. Use supplied air for oxygen-deficient atmospheres or where air-purifying respirators are not appropriate.

Eye and face protection: Wear a welding helmet or hand shield with the correct filter shade for the process and current, plus safety glasses with side shields meeting applicable ANSI requirements. Shield nearby personnel from arc radiation and spatter.

Skin and body protection: Wear dry, hole-free welding gloves and flame-resistant protective clothing that covers exposed skin. Use protective sleeves, aprons, footwear, and hearing protection as required. Insulate the body from the work and ground; replace wet or damaged PPE.

Hygiene measures: Wash hands and face before eating, drinking, smoking, or leaving the work area. Keep work clothing separate and launder contaminated clothing before reuse. Do not take welding dust into vehicles or homes.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Property	Value
Physical state and appearance	Copper-colored solid steel wire supplied on spools or in bulk packages
Odor and odor threshold	Odorless; not applicable
pH	Not applicable to solid metal
Melting or freezing point	No product-specific data; steel alloy
Boiling point and range	No product-specific data
Flash point and evaporation rate	Not applicable
Flammability	Not flammable as a bulk solid
Upper and lower explosive limits	Not applicable
Vapor pressure and vapor density	Not applicable
Relative density	Approximately 7.8, based on carbon steel
Solubility	Insoluble in water
Partition coefficient	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	No applicable information available for the solid wire
Viscosity	Not applicable
Particle characteristics	Continuous solid wire; available diameters include 0.030, 0.035, and 1/16 inch

SECTION 10 - STABILITY AND REACTIVITY

Reactivity and stability: Stable and non-reactive as shipped under normal storage and handling conditions.

Hazardous reactions: Hazardous polymerization will not occur. Fine metal particles may react with strong oxidizers; contact between molten metal and water may be violent.

Conditions to avoid: Moisture, strong acids, strong oxidizers, halogens, physical damage, and uncontrolled heat or hot-work conditions.

Incompatible materials: Strong acids, strong oxidizing agents, and halogens.

Hazardous decomposition products: Welding produces fumes and gases whose composition depends on the consumable, base metal, coatings, shielding gas, process, and contaminants. Expected products may include oxides of iron, manganese, silicon,



copper, and other metals; carbon monoxide, carbon dioxide, ozone, and nitrogen oxides may also form. Welding chromium-containing materials can generate hexavalent chromium.

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely routes of exposure: Inhalation of welding fumes and gases is the principal route during use. Eye and skin exposure may occur from fume, particles, spatter, heat, and arc radiation. Ingestion is not expected in normal use but can occur through poor hygiene.

Acute effects: The solid wire is not classified for acute toxicity, skin corrosion, serious eye damage, or sensitization. Welding fume overexposure may cause irritation, coughing, dizziness, nausea, and metal fume fever. Arc radiation can cause eye injury and skin burns. Shielding and process gases may cause asphyxiation in poorly ventilated spaces.

Chronic effects: Repeated welding-fume exposure may damage the lungs; reports include bronchitis and lung fibrosis. Iron oxide fume may cause siderosis. Excessive manganese exposure may cause irreversible neurological effects, including impaired movement, speech, coordination, and mood. Nickel-containing fumes may cause sensitization and may contribute to cancer risk.

Carcinogenicity: The product as shipped is not classified as carcinogenic. IARC classifies welding fumes and ultraviolet radiation from welding as carcinogenic to humans (Group 1). Metallic nickel is listed by the U.S. National Toxicology Program as reasonably anticipated to be a human carcinogen. Actual fume hazards depend strongly on the base metal, coatings, and process.

Other hazard classes: Based on available product information, the solid wire is not classified for germ cell mutagenicity, reproductive toxicity, specific target organ toxicity, or aspiration hazard. No product-specific toxicological test data are available.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No product-specific test data are available. Metal fines, welding dust, and residues may contain constituents harmful to aquatic organisms at sufficient concentrations.

Persistence and degradability: Metals are not biodegradable and may persist in the environment in elemental, oxide, or ionic forms.

Bioaccumulative potential and mobility: No product-specific data are available. Mobility depends on particle size, pH, and environmental conditions.

Other adverse effects: Prevent uncontrolled release of wire fragments, fines, and welding residues.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment: Minimize waste and recycle clean steel wire and scrap where practical. Collect welding dust, filters, and cleanup residues in labeled containers. Determine waste classification using the actual composition and applicable federal, state, and local requirements. Do not discharge residues to sewers or waterways.

Packaging: Recycle or dispose of spools, drums, liners, and cartons in accordance with local requirements after removing product residue.

SECTION 14 - TRANSPORT INFORMATION

Transport system	Classification
U.S. DOT	Not regulated as a dangerous good as shipped
IMDG	Not regulated as a dangerous good as shipped
IATA	Not regulated as a dangerous good as shipped
UN number / proper shipping name / class / packing group	Not applicable
Environmental hazards	Not classified as a marine pollutant as shipped
Special precautions	Secure heavy spools and bulk packages against shifting or damage

SECTION 15 - REGULATORY INFORMATION

OSHA Hazard Communication: Not classified as hazardous as shipped under 29 CFR 1910.1200. Hazards created during welding must be addressed through the employer's hazard assessment, controls, training, and protective equipment programs.

U.S. TSCA: The elemental constituents identified in Section 3 are listed on, or exempt from, the Toxic Substances Control Act inventory requirements.

EPCRA SARA Title III Section 313: Manganese is present above the 1% de minimis concentration. Nickel may be present up to 0.15%, and copper may be present up to 0.50%. Facilities must evaluate actual composition, processing, quantity thresholds, and any applicable article or otherwise-use exemptions when determining reporting duties.

CERCLA: Copper, nickel, and chromium are listed hazardous substances in certain forms and particle sizes. The intact wire is not expected to create a reportable release; evaluate fines, dusts, and process residues under applicable requirements.

⚠ CALIFORNIA PROPOSITION 65 WARNING: Welding with this product can expose you to welding fumes and chemicals including nickel, which is known to the State of California to cause cancer. Other listed chemicals may be generated from the base metal, coatings, or process. For more information go to www.P65Warnings.ca.gov.

**SECTION 16 - OTHER INFORMATION**

Approval Date: 9-29-2026 **NEW SDS Number:** CB-ER70S6-NA-EN

Revision: 1 - ER70S-6 source review and technical clarification

HMIS ratings: Health: 2* Flammability: 0 Physical hazard: 0

NFPA CODES: FIRE: 0 HEALTH: 1 REACTIVITY: 0

U.S. DOT = Material is not hazardous and is not considered as a dangerous item.

Technical review basis: Copper Bridge ER70S-6 Technical Data Sheet and SDS 702-ZR (2019), carbon-steel ER70S-6 portions only. Zirconium- and hafnium-specific information was excluded.



Notice: The information is based on product composition and sources considered reliable on the approval date. Welding-fume and gas hazards vary with the base metal, coatings, process, shielding gas, and workplace controls.