

MATERIAL SAFETY DATA SHEET

THE HARRIS PRODUCTS GROUP A LINCOLN ELECTRIC COMPANY
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SDSLFB

Harris American LFB (low fuming bronze), Bare and FC (flux coated), Harris 40-40FC Nickel Silvers, Harris 15-15FC, Harris 17-17FC Harris 170-170FC

WARNING! Protect yourself and others. PRODUCT COMPONENTS PRESENT POSSIBLE HEALTH AND SAFETY HAZARDS. Use of this product may expose you or others to fumes and gases at levels exceeding those established by the American Conference of Governmental Industrial Hygienists (ACGIH) or the Occupational Safety and Health Administration (OSHA). READ AND UNDERSTAND THIS LITERATURE. ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES. The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. BE SURE TO CONSULT THE LATEST EDITION OF THE FULL MATERIAL SAFETY DATA SHEETS (MSDS). MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS CO.

TELEPHONE:513-754-2000, WEB SITE: www.harrisproductsgroup.com

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HARRIS AMERICAN LFB / NICKEL SILVER

BARE AND FC (FLUX-COATED RODS)

CAUTION! FUMES MAY BE HARMFUL IF INHALED. FUMES CAN CAUSE SKIN AND EYE IRRITATION. MOLTEN RODS CAN CAUSE THERMAL BURNS.

SUMMARY OF IMPORTANT SAFE-WORK PRACTICES

- Keep out of reach of children.
- Do not get on skin or in eyes.
- Avoid breathing fumes. Keep head away from fumes.
- Exhaust at the flame or heat source to keep fumes and gases from breathing zone and general area.
- Wash thoroughly after handling.
- Wear gloves, goggles, face-shields, suitable body protection, and NIOSH-approved respiratory protection, as appropriate.
- For maximum safety, be certified for and wear a respirator at all times MSDSLFB Harris American LFB (low fuming bronze), Bare and FC (flux coated), Harris 40-40FC Nickel Silvers, Harris 15-15FC, Harris 17-17FC Harris 170-170FC during welding operations.

See American National Standard Z49.1, Safety in Welding, Cutting, and Allied Processes, published by the American Welding Society, 550 NW LeJeune Rd., Miami, FL 33126. Also see OSHA Safety and Health Standards, 29 CFR 1910, available from the U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954.

SECTION 1 - PRODUCT IDENTIFICATION

Manufacturer/ Supplier:	THE HARRIS PRODUCTS GROUP
Address:	4501 QUALITY PLACE, MASON, OH 45040
Emergency Telephone No.:	1-800-424-9300
Information Telephone No.:	513-754-2000 Fax 513-754-8700
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SECTION 2 - COMPOSITION and INFORMATION ON INGREDIENTS

Trade Name	Manganese	Nickel	Silicon	Iron	Tin	Copper	Zinc
Harris American LFB Harris 40	0.50%	-	0.50%	1.5%	3.0%	56-62%	Balance
Harris 15& Harris 17 Harris 170	1.50%	13.0%	0.50%	1.5%	3%	44-60%	Balance

Single values are maximums, unless otherwise noted.

NOMINAL COMPOSITION WEIGHT %METAL RODS (ALSO MAY BE FLUX COATED RODS)

These products consist of bronze rods, some with a thin coating of flux on them. The exact amount of coating on each rod is unknown. It can be reasonably estimated that there is less than 1% of each of the flux constituents present on any given rod when compared to the mass of the rod itself. The composition values given for the flux coating are the composition of the flux when the rods are flux-coated.

NOMINAL COMPOSITION WEIGHT % FLUX COATING

Methacrylate/Aliphatic & Naphthenic Hydrocarbon Compound CAS #: Proprietary	Boric Acid CAS #: 10043-35-3	Borax Glass CAS #: 1303-96-4
Proprietary %	50-80%	10-30%

EXPOSURE LIMIT INFORMATION

CHEMICAL	CAS #	ACGIH-TLV TWA mg/m3	OSHA-PEL TWA mg/m3	NIOSH-REL TWA mg/m3
Borax Glass	1303-96-4	1	*10	1
Boric Acid	10043-35-3	NE	NE	NE
Nickel (exposure limits are for Nickel, elemental metal)	7440-02-0	1.5 (inhalable fraction)	TWA=1.0	NIOSH REL:TWA = 0.015 Carcinogen: IARC-2B, MAK1,NIOSH-Ca, NTP-R, TLV A5
Copper (exposure limits are for Copper fume, as Cu)	7440-50-8	0.2 (fume), 1 (dusts & mists)	0.1 (fume), 1 (dusts & mists)	0.1
Iron (exposure limits are for Iron Oxide dusts and fume, as Fe)	7439-89-6	5	10	5
Manganese (exposure limits are for Manganese, elemental, inorganic compounds, and fume as Mn)	7439-96-5	0.2	*1	1(STEL = 3)
Silicon	7440-21-3	10	15 (total dust), 5 (respirable fraction)*10 (total dust)	10 (total dust), 5 (respirable fraction)
Tin	7440-31-5	2	2	2

NOTE: Fumes may be generated during the use of these welding products. To appropriately assess inhalation hazards, one recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the worker's breathing zone. See ANSI/AWS F1.1 "Method for Sampling Airborne Particulates Generated by Welding and Allied Processes", and F1.5M, "Methods for Sampling and Analyzing Gases from Welding and Allied Processes", available from the American Welding Society, 550 NW LeJeune Rd., Miami, FL 33126.



NE = Not Established *1989 Vacated OSHA PEL NIC = Notice of Intended Change
SARA SECTION 313 SUPPLIER INFORMATION: These products contain the following chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (per 40 CFR 372). Copper, Manganese, Zinc and Nickel.

SECTION 3 - HAZARD IDENTIFICATION

There are no immediate hazards with these rods. The chief acute health hazard associated with these products is inhalation of fumes during brazing operations. If involved in a fire, these products may generate irritating fumes and a variety of metal oxides. The nickel components of some of these products are suspect carcinogens.

CARCINOGENICITY STATUS: Chemicals in these rods are listed, as follows.

COPPER: EPA-D IRON: EPA-D, TLV-A4 MANGANESE: EPA-D NICKEL: EPA-A, Human Carcinogen; IARC-2B (Possibly Carcinogenic to Humans); NIOSH-X (Carcinogen Defined with no Further Categorization); NTP-2B (Sufficient Evidence of Carcinogenicity from Studies in Experimental Animals); TLV-A5 (Not Suspected as a Human Carcinogen); MAK-1 (Capable of Inducing Malignant Tumors as Shown by Experience with Humans)

The other components of these products are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Nickel is a component of some of these alloys and is on the Proposition 65 list. The State of California requires the following information: WARNING: This product may contain chemicals, and when used for brazing may produce fumes or gases containing chemicals, known to the State of California to cause cancer, and/or birth defects (or other reproductive harm.)

SECTION 4 - FIRST-AID MEASURES

SKIN: If the product's fumes irritate the skin, begin decontamination with running water. Minimum flushing is for 15 minutes.

EYES: If the product's fumes irritate the eyes, flush eyes under gently running water. Minimum flushing is for 15 minutes.

INHALATION: Move victim to fresh air. If necessary, use artificial respiration.

INGESTION: Not applicable.

VICTIMS OF CHEMICAL EXPOSURE MUST BE TAKEN FOR MEDICAL ATTENTION, ESPECIALLY IF ADVERSE EFFECTS CONTINUE AFTER FIRST-AID TREATMENT.

REFER TO SECTION 11 FOR ADDITIONAL TREATMENT INFORMATION!

EXPLOSION SENSITIVITY TO MECHANICAL IMPACT: Not sensitive.

EXPLOSION SENSITIVITY TO STATIC DISCHARGE: Not sensitive.

SECTION 5 - FIRE-FIGHTING MEASURES

FIRE HAZARDS: During a fire, irritating fumes (e.g., metal oxides) may be generated.

FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Pick-up or sweep-up spilled product carefully, inhalation of dusts or particulates. If material is molten, allow to cool and solidify, then scrape-up product carefully. Decontaminate area thoroughly.

SECTION 7- HANDLING and STORAGE

Place all spilled residues in a suitable container and dispose of according to Federal, State and local hazardous waste disposal regulations. All employees who handle these materials should be trained to handle them safely. Avoid breathing fumes during brazing operations. Store these rods in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible chemicals (see Section 10, Stability and Reactivity). Inspect all incoming containers before storage to ensure they are



properly labeled and not damaged. If these products are used during brazing operations, it is recommended that the requirements of the Federal Occupational Safety and Health Welding and Cutting Standard (29 CFR 1910 Subpart Q) and the Standards of the American National Standards Institute for Welding and Cutting (ANSI Z49.1) be followed.

SECTION- 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Ensure eyewash/safety shower stations are available.
RESPIRATORY PROTECTION: If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the appropriate standards of Canada and its Provinces. It is suggested that NIOSH guidelines for welding fumes are followed. For further information, see full MSDS for these products.
EYE PROTECTION: Safety glasses. When used during brazing, wear safety glasses, goggles or faceshield with filter lens of appropriate shade number (per ANSI Z49.1-1988, "Safety in Welding and Cutting", as necessary).
HAND PROTECTION: Wear gloves that will protect against heat of metal product.
BODY PROTECTION: None needed for normal circumstances of use. Use body protection appropriate for task (i.e., leather apron, and coveralls).

SECTION 9 PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY: Not applicable.
EVAPORATION RATE: Not applicable.
SPECIFIC GRAVITY (water = 1): Not established for the rods. See MSDS.
FREEZING POINT: Not applicable.
SOLUBILITY IN WATER: Insoluble.
BOILING POINT: Not applicable.
VAPOR PRESSURE: Not applicable.
pH: Not applicable
APPEARANCE AND COLOR: These products are metallic copper-colored, odorless metal rods which may have a flux coating

SECTION 10 STABILITY and REACTIVITY

STABILITY: Stable.
DECOMPOSITION PRODUCTS: Variety of metal oxides.
MATERIALS WITH WHICH PRODUCTS ARE INCOMPATIBLE: Strong acids, strong oxidizers, some halogenated compounds.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 OTHER USEFUL INFORMATION

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms.
PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada and its Provinces. Refer to the full size Material Safety Data Sheet for more specific information on waste disposal.
ADDITIONAL U.S. AND CANADIAN REGULATIONS: Various other U.S. Federal and State Standards (or those of Canada and its Provinces) may be pertinent to the safe use, storage, and disposal, and regulatory reporting requirements. Refer to the Full Size Material



Safety Data Sheet for more specific information.
TRANSPORTATION REGULATIONS:
Not regulated under current U.S. DOT regulations.