

MATERIAL SAFETY DATA SHEET

THE HARRIS PRODUCTS GROUP A LINCOLN ELECTRIC COMPANY
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MSDS1070KIT

ALUMINUM FLUX- ALBRAZE 1070 KIT

IMPORTANT! THIS IS A CONDENSED VERSION OF TWO FULL SIZE MATERIAL SAFETY DATA SHEETS (MSDS). READ THE FULL MSDS BEFORE USING THIS PRODUCT.

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 SIZE MATERIAL SAFETY DATA SHEETS (MSDS). MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM The Harris Products Group.**

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

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INSTRUCTIONS

CLEANING: Clean parts to be joined of all grease, dust, oxidation or other foreign matter, preferably by using a stainless steel wire brush, steel wool or emery cloth. Avoid any dust from the cleaning process from entering pipe openings as contamination of the system may result. **FLUXING:** Mix powder flux with water and paint aluminum surfaces to be joined. Heat brazing rod slightly with torch and dip into dry powder; this will coat the rod with additional flux. **HEATING:** Assemble parts and heat with a reducing-type flame (inner cone 1" long, outer blue flame 4 to 5" long). Rotate torch over parts to be joined. Keep inner cone one to two inches away from the work piece, keep torch in constant motion. Do not heat directly on the joint area. If one part is heavier than the other, concentrate more heat on that part. The object is to bring both aluminum parts to brazing temperature at the same time. Brazing temperature is indicated when the flux melts and becomes clear. The brazing alloy should then be placed at the joint area and be allowed to melt by heat conducted from work pieces. Do not melt the brazing alloy with the torch flame. **AVOID OVERHEATING:** The most common failure in brazing is the application of too much heat. When brazing aluminum, you are very close to the melting temperature of the aluminum and care is necessary. When the brazing alloy begins to flow, discontinue or diminish heating and carefully look at the joint to determine how far the alloy has flowed. The alloy may flow part way and stop. Heat should then be applied again to finish the job.

ALUMINUM FLUX

DANGER! CORROSIVE MAY BE HARMFUL OR FATAL IF INHALED OR SWALLOWED. CAUSES SKIN OR EYE BURNS.

ALUMINUM WELDING WIRES AND RODS

CAUTION! THESE WIRES OR RODS ARE NON-HAZARDOUS IN SOLID FORM. INHALATION OF DUSTS OR FUMES OF THESE PRODUCTS DURING USE CAN BE IRRITATING AND CAN CAUSE METAL FUME FEVER. FUMES CAN CAUSE SKIN AND EYE IRRITATION. MOLTEN WIRES AND RODS CAN CAUSE THERMAL BURNS.



SUMMARY OF IMPORTANT SAFE-WORK PRACTICES

- Keep out of reach of children. Do not touch live electrical parts.
- Do not taste or swallow. Do not get on skin or in eyes.
- Avoid breathing fumes, vapors or mist.
- Keep container closed when not in use.
- Wash thoroughly after handling. Use only with adequate ventilation.
- Wear gloves, goggles, face-shields, suitable body protection, and NIOSH/OSHA-approved respiratory protection, as appropriate.
- For maximum safety, be certified for and wear a respirator at all times when welding, brazing or soldering.

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:	J.W. HARRIS CO., INC.
Address	4501 Quality Place; Mason, Ohio 45040-1971
Emergency Telephone No.	CHEMTREC: 1-800-424-9300
Information Telephone No.	1-513-754-2000 FAX: 513-754-8778
Date Prepared	February 18, 2004

SECTION 2 - COMPOSITION and INFORMATION ON INGREDIENTS

AL-BRAZE 1070 FLUX (INCLUDED IN KIT), AL-BRAZE EC FLUX , HARRIS 10 FLUX

CHEMICAL	CAS # % w/w	ACGIH-TLV mg/m ³	OSHA-TWA mg/m ³	NIOSH-REL mg/m ³
Alkali Metal Chlorides: Lithium Chloride Potassium Chloride Sodium Chloride	7447-41-8 7447-40-7 7647-14-5 75-90%	NE	NE	NE
Lithium Fluoride	7789-24-4 < 15 %	TWA = 2.5, A4 (Not Classifiable as a Human Carcinogen) STEL = NE	TWA = 2.5 STEL = NE	TWA = 2.5 STEL = 20 IDLH = 250 DFG MAK: 2.5 (Total respirable dust fraction)
Zinc Chloride (exposure limits are for Zinc Chloride fume)	7646-85-7 < 20 %	TWA=1 STEL=2	TWA=1 STEL=2*	TWA=1 STEL=2 IDLH=50
ALBRAZE 1070 WIRE (4047 or 718)				
Aluminum (exposure limits are for aluminum, metal dust and aluminum, welding fume, as aluminum)	7429-90-5 rem.	TWA 10 (dust) 5 (fumes)	15 (Total dust) 5 (Respirable fraction) 5* (fume)	NIOSH RELs: TWA = 10 (Total dust); 5 (Respirable fraction); 5 (fumes) DFG MAK: TWA = 1.5 (dust -respirable fraction)
Copper (exposure limits are for copper fume, as Cu and dusts & mists, as Cu)	7440-50-8 <0.03	TWA 0.2 (fume) 1 (dusts & mists)	TWA 0.1 (fume) 1 (dusts & mists)	NIOSH RELs: TWA 1 = (dust); 0.1 (fume) DFG MAKs: TWA = 0.1 (fume-respirable fraction); 1 (dusts & mists-inhalable fraction) PEAK = 2 MAK, 30 min., average value Carcinogen: EPA-D (dusts & mists)
Iron (exposure limits are for iron oxide dust and fume [Fe ₂ O ₃], as Fe)	7439-89-6 <0.08	TWA = 5	TWA 10	NIOSH REL: TWA = 5 DFG MAK:TWA = 1.5 (respirable fraction) Carcinogen: IARC-3, TLV-A4
Magnesium (exposure limits are	7439-95-4 <0.10	TWA = 10	TWA = 15 (Total	NE



for magnesium oxide fume)			particulate) 10*	
Manganese (exposure limits are for Manganese, elemental, inorganic compounds, and fume, as manganese)	7439-96-5 <0.15	TWA = 0.2	TWA = 1* STEL = 5 C, 3*	NIOSH RELS: TWA: 1 STEL: 3 DFG MAKs: TWA = 0.5 (Inhalable fraction) PEAK = 10 MAK 30 min., average value DFG MAK Pregnancy Risk Group Classification: C Carcinogen: EPA-D
Silicon	7440-21-3 11.0-13.0	TWA = 10	TWA = 15 (Total dust) 5 (Respirable fraction) 10* (Total dust)	NIOSH REL: TWA = 10 (Total dust); 5 (Respirable fraction)
Zinc Exposure limits given are for Zinc oxide, Fume	7440-66-6 <0.20	TWA = 5 (fume) 10 (dust) STEL = 10 (fume)	TWA 5 (fume) 5 (total dust)	NIOSH RELS: TWA = 5 (fume & dusts) STEL = 10 (fume) 15 (ceiling, 15 minutes, dusts) DFG MAKs: TWA = 1.5 (Respirable fraction, fume) Carcinogen: EPA-D

- Vacated 1989 OSHA PEL. NE = Not Established. C = Ceiling Level.

NOTE: Fumes may be generated during the use of these products. To appropriately assess inhalation hazards, one recommended way to determine the composition and quantity of fumes and gases to which worker's 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", from the American Welding Society, 550 NW LeJeune Rd., Miami, FL 33126.

SARA SECTION 313 SUPPLIER INFORMATION: The individual fluxes contain toxic 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). The specific chemicals listed are as follows: Zinc Chloride (as Zinc Compound). The individual wire 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). Aluminum, Copper, Manganese, Zinc.

SECTION 3 - HAZARD IDENTIFICATION

The chief acute health hazard associated with these products is inhalation of fumes during welding or brazing operations. Symptoms of inhalation over-exposure may include sore throat, choking, coughing, difficulty breathing. Lung damage may occur after severe inhalation exposures. Prolonged or over-exposure to these product may result in dermatitis (red, dry, itchy skin) and ulceration. This product is not flammable nor reactive under normal circumstances; however, it may generate flammable hydrogen gas upon contact with metals. Inhalation of copper, manganese and zinc oxide fumes can cause metal fume fever. Symptoms are flu-like. Inhalation of large amounts of particulates generated by these products during metal processing operations can result in pneumoconiosis (a disease of the lungs). Contact with molten wire will burn contaminated tissue. Though the wire or rod is neither flammable nor reactive under normal conditions, if involved in a fire or exposed to extremely high temperatures, harmful fumes and a variety of metal oxides may be generated. Ingestion overexposure may be harmful or fatal. Fluxes can severely irritate and burn the skin, eyes, and any other contaminated tissue; repeated inhalation over-exposure may cause burns and ulcers to the nose and throat, dental erosion, bronchitis, and stomach pains.

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

COPPER: EPA-D **IRON:** EPA-D, TLV-A4 **MANGANESE:** EPA-D **ZINC CHLORIDE:** EPA-D **ZINC:** EPA-D

The other components of this product 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.

DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of some of these alloys are on the Proposition 65 list. The State of California requires the following information: **WARNING:** This product may contain chemicals, and when



used 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: Begin decontamination with running water. Minimum flushing is for 15 minutes.

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: CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if the person is unconscious, having convulsions, or not breathing.

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

SECTION 5 - FIRE-FIGHTING MEASURES

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

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

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

FLASH POINT: Not applicable

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABLE LIMITS: Not applicable

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES (for cooling) **Carbon Dioxide:** YES

Halon: YES **Foam:** YES

Dry Chemical: YES **Other:** Any "ABC" Class.

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS: Not applicable

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES (for cooling) **Carbon Dioxide:** YES

Halon: YES **Foam:** YES

Dry Chemical: YES **Other:** Any "ABC" Class.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Clear the affected area, protect people, and respond with trained personnel. Proper personal protective equipment must be worn. Place all spilled residues in a suitable container and seal. Dispose of in accordance with applicable U.S. Federal, State, or local procedures and appropriate Canadian standards. Refer to the full size version Material Safety Data Sheet for detailed response information.

SECTION 7- HANDLING and STORAGE

All employees who handle these materials should be trained to handle them safely. Empty containers may contain residual product; therefore, empty containers should be handled with care. Store these fluxes in a cool, dry location, away from direct sunlight, sources of intense heat. Store away from incompatible chemicals (see Section 10, Stability and Reactivity). Materials should be stored in secondary containers or in a diked area, as appropriate. Storage and use areas should be covered with impervious materials. Inspect all incoming containers before storage to ensure they are properly labeled and not damaged.

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.

EYE PROTECTION: Safety glasses or goggles. Faceshields may be needed if operations generate splashes or sprays. If welding, wear eye protection with filter lens of appropriate shade number (refer to ANSI/ASC Z49.1, Section 4.2).

HAND PROTECTION: Wear gloves for routine industrial use.

BODY PROTECTION: None needed for normal circumstances of use. Use body protection appropriate for task (i.e., apron, coveralls, and chemically-resistant boots).

SECTION 9- PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not applicable. **pH:** Not applicable

EVAPORATION RATE (nBuAc = 1): Not applicable.

VAPOR PRESSURE: Not established **FREEZING POINT:** Not established.

SPECIFIC GRAVITY (water = 1): Not applicable. **BOILING POINT:** Not established.

SOLUBILITY IN WATER: Flux = Moderately soluble. Wire = Insoluble.

APPEARANCE AND COLOR: HARRIS 10 is an odorless, pink powder. Al-braze EC and Al-braze 1070 is an odorless, white powder

APPEARANCE AND COLOR: Albraze 1070 wires or rods are gray to silver, odorless metal.

SECTION 10- STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Flux = Hydrogen fluoride, alkali metal oxides, fluorine, and chlorine. Wire = Metal oxides of copper, manganese, and zinc

INCOMPATIBILITIES: Flux = Strong oxidizers, strong acids, and interhalogens.

Wire = Strong acids, strong bases, strong oxidizers, metal oxides, alcohols, halogenated hydrocarbons, halogens.

CONDITIONS TO AVOID: Extreme temperatures, moisture, incompatible materials. **HAZARDOUS POLYMERIZATION:** Will not occur.

SECTION 11- OTHER USEFUL INFORMATION

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 version 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 version Material Safety Data Sheet for more specific information.

TRANSPORTATION REGULATIONS:

Albraze 1070 flux

PROPER SHIPPING NAME: Corrosive Solid, n.o.s.
(Zinc chloride, Lithium chloride - anhydrous mixture)

HAZARD CLASS NUMBER and DESCRIPTION: 8 (Corrosive)

UN IDENTIFICATION NUMBER: UN 1759

PACKING GROUP: II

DOT LABEL(S) REQUIRED: CORROSIVE

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 154

NOTE: Exception for Class 8 for net capacity of 2.2 pounds or less on inner packaging. Refer to 49 CFR 173.154 for additional information.

Not regulated under current U.S. DOT regulations.