STAY CLEAN® ALUMINUM FLUX - ALSOLDER 500 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 MATERIAL SAFETY DATA SHEETS (MSDS). MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS PRODUCTS GROUP**

E-MAIL: salesinfo@jwharris.com, TELEPHONE:513-754-2000,
WEB SITE: www.harrisproductsgroup.com

STATEMENT OF LIABILITY – DISCLAIMER

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STAY CLEAN ALUMINUM SOLDERING FLUX

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

ALSOLDER 500 SOLDER

CAUTION! FUMES MAY BE HARMFUL IF INHALED. FUMES CAN CAUSE SKIN AND EYE IRRITATION. FUMES OR CONTACT WITH PLASTIC CORE MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTIONS. MOLTEN SOLDER CAN CAUSE THERMAL BURNS.

SUMMARY OF IMPORTANT SAFE-WORK PRACTICES

- Keep out of reach of children. 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. Use only with adequate ventilation.
- Wash thoroughly after handling. 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 or soldering.

INSTRUCTIONS: Excellent for joining aluminum to aluminum and to most other metals. Resists electrical corrosion Flow temperature 480°F (249°C). Clean parts to be joined of all rust, grease, oxidation or other foreign matter, preferably use a wire brush or emery cloth. Avoid any dust from the cleaning process from entering the pipe openings. This can contaminate the cooling system. Apply flux to both parts at area to be joined. Assemble parts and heat them evenly with a slightly neutral flame. Keep the inner point of the flame 1/2" to 1" away from the workpiece, while constantly rotating the flame all around the parts. Do not heat directly on the area to be joined. If one part is considerably heavier than the other is, concentrate more heat on the heavier than the other; concentrate more heat on the heavier part. When joining copper or brass to iron or steel, concentrate more heat on the copper or brass, allowing these heat-conductive metals to transfer heat to the less conductive iron or steel. The object is to raise the temperature of the parts being joined evenly until they are sufficiently hot to melt the solder. The solder should melt by heat conducted from the workpieces. Do not melt the solder with the torch flame. The solder should flow all around the joint forming a perfect bond. As the work becomes hot, the flux will give off white smoke. The work should then be sufficiently hot to melt the solder. As soon as the solder begins to flow, discontinue heating and carefully examine to see how far the solder has flowed. Should the joint not be complete, resume heating until the solder again flows. Stay-Clean aluminum flux burns and becomes inactive at temperatures just above the flow point of the solder. When the solder will no longer flow or bond after it is molten, you have probably overheated, and the flux has become inactive. Allow the workpiece to cool for several minutes, apply fresh flux, and proceed as above.

SECTION 1 - PRODUCT IDENTIFICATION

Manufacturer:	HARRIS PRODUCTS GROUP
Address	4501 Quality Place; Mason, Ohio 45040
Emergency Telephone No.	CHEMTREC: 1-800-424-9300
Information Telephone No.	513-754-2000 **FAX** 513-754-8778
Date Prepared	November 30, 2010 **REVIEWED** July 2, 2004

SECTION 2 - COMPOSITION and INFORMATION ON INGREDIENTS

STAY CLEAN ALUMNIUM SOLDERING FLUX

CHEMICAL	CAS # % w/w	ACGIH-TLV mg/m^3	OSHA-TWA mg/m^3	NIOSH-REL mg/m^3
Triethanolamine	102-71-6 30-60%	TWA = 5	NE	NE
Aminoethyletha-nolamine	111-41-1 35%	NE	NE	NE
Ammonium Fluoborate Exposure limits are for inorganic, solid Fluoride compounds, as F	13826-83-0 20 %	TWA=2.5	TWA=2.5	DFG MAKs: TWA = 2.5 (Inhalable Fraction) PEAK = 5•MAK 30 min., average value Carcinogen: IARC-3, TLV-A4 IDLH = 250
Tin, Metal	7440-31-5 10 %	TWA = 2	TWA = 2	TWA = 2
Zinc Oxide Exposure limits given are for fume.	1314-13-2 10 %	TWA = 5 (fume) 10 (dust) STEL=10 (fume)	5 (fume)	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
Zinc (exposure limits are for zinc oxide, fume&dust)	7440-66-6 5%	TWA = 5 (fume) 10 (dust) STEL=10 (fume)	5 (fume) 5 (total dust) 15 (dust, respirable dust) 5 (dust, respirable dust, Vacated 1989 PEL)	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

ALSOLDER 500 SOLDER (85/15)- Included in kit

CHEMICAL	CAS # % w/w	ACGIH-TLV mg/m^3	OSHA-TWA mg/m^3	NIOSH-REL mg/m^3
Tin The following exposure limits are for "Tin, Metal".	7440-31-5 85.0-96.6%	TWA = 2	2	TWA = 2
Zinc (exposure limits are for zinc oxide, fume)	7440-66-6 1.5-15.0%	TWA = 5 STEL = 10	5	TWA = 5 (fume & dusts) STEL = 10 (fume) STEL = 15 (ceiling, 15 minutes, dusts)

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

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.

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).Zinc Oxide, Zinc

SECTION 3 - HAZARD IDENTIFICATION

STAY CLEAN ALUMINUM SOLDERING FLUX

This acidic, corrosive solution can irritate and burn the skin, eyes, and any other contaminated tissue. Symptoms of inhalation over-exposure may include sore throat, choking, coughing, difficulty breathing. Lung damage may occur after severe inhalation exposures. Depending on the duration and concentration of over-exposure, skin or eye contact with this product can cause tissue damage, which may be permanent. Ingestion overexposure may be harmful or fatal. Prolonged or repeated inhalation over-exposure may cause burns and ulcers to the nose and throat, dental erosion, bronchitis, and stomach pains. Repeated or prolonged over-exposure to this product may result in dermatitis (red, dry, itchy skin) and ulceration. This product is not flammable nor reactive under normal circumstances; however, it may produce toxic fumes and vapors.

ALSOLDER 500 SOLDER (85/15)

There are no immediate hazards with these solders. The chief acute health hazard associated with these products would be the potential for inhalation of the fumes during soldering operations. Inhalation of metal oxide 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 solder will burn contaminated tissue. Chronic skin over-exposure to the fumes of these products generated during soldering operations may produce dermatitis (red, inflamed skin).

CARCINOGENICITY STATUS: Chemicals in the components product are listed, as follows.
AMMONIUM FLUORBORATE (as a Barium Compound): EPA-D, Not Classifiable as to Human

Carcinogenicity ; EPA-NL , Not Likely to be Carcinogenic in Humans; ACGIH TLV-A4 , Not Classifiable as a Human Carcinogen
ZINC: EPA-D , Not Classifiable as to Human Carcinogenicity (inadequate human and animal evidence of carcinogenicity or no data available)
ZINC OXIDE: EPA-D , Not Classifiable as to Human Carcinogenicity (inadequate human and animal evidence of carcinogenicity or no data available)
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 components 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

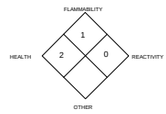
SKIN: Begin decontamination with running water. Minimum flushing is for 15 minutes.
EYES: Flush eyes under gently running water. Minimum flushing is for 15 minutes.
INHALATION: Move victim to fresh air. If necessary, use artificial respiration.
INGESTION: CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST 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

STAY CLEAN® ALUMINUM SOLDERING FLUX

FLASH POINT: Not flammable. 179-185°C (354-365°F) [for Triethanolamine]
AUTOIGNITION TEMPERATURE: Not applicable.
FLAMMABLE LIMITS: Not applicable

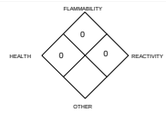


FIRE EXTINGUISHING MATERIALS:
Water Spray: YES (for cooling)
Halon: YES
Dry Chemical: YES
Carbon Dioxide: YES
Foam: YES
Other: Any "ABC" Class.

EXPLOSION SENSITIVITY TO MECHANICAL IMPACT: Not sensitive.
EXPLOSION SENSITIVITY TO STATIC DISCHARGE: Not sensitive.
FIRE HAZARDS: This flux is acidic and presents a contact hazard to firefighters. During a fire, irritating and toxic gases (e.g., carbon monoxide, carbon dioxide, hydrogen chloride, nitrogen and zinc oxides, and ammonia) may be generated.
FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing (e.g., chemical splash suit) may be necessary.

ALSOLDER 500 SOLDER (85/15)

FLASH POINT: Not applicable
AUTOIGNITION TEMPERATURE: Not determined.
FLAMMABLE LIMITS: Not applicable



FIRE EXTINGUISHING MATERIALS:
Water Spray: YES (for cooling)
Halon: YES
Dry Chemical: YES
Carbon Dioxide: YES
Foam: YES
Other: Any "B" Class.

EXPLOSION SENSITIVITY TO MECHANICAL IMPACT: Not sensitive.
EXPLOSION SENSITIVITY TO STATIC DISCHARGE: Not sensitive.
FIRE HAZARDS: During a fire, irritating fumes (e.g., metal oxides of tin, zinc, copper) may be generated.
FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

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.
If the heated flux has been spilled, allow the material to cool before clean-up procedures begin. Rinse area with soap and water solution.

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 flux 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). 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 neoprene or rubber gloves for routine industrial use.
BODY PROTECTION: None needed for normal circumstances of use. Use body protection appropriate for task (i.e., apron, coveralls, chemically-resistant boots).

SECTION 9- PHYSICAL and CHEMICAL PROPERTIES

STAY CLEAN ® ALUMINUM SOLDERING FLUX

RELATIVE VAPOR DENSITY (air = 1): > 1
EVAPORATION RATE (nBuAc = 1): > 1
SPECIFIC GRAVITY (water = 1): Not established.
FREEZING POINT: Not established.
SOLUBILITY IN WATER: Soluble.
BOILING POINT: Not established.
VAPOR PRESSURE: Not established.
pH: Not applicable.
APPEARANCE AND COLOR: This flux is a viscous, amber liquid with a strong ammonia odor.

ALSOLDER 500 SOLDER (85/15)

RELATIVE VAPOR DENSITY (air = 1): N/A
EVAPORATION RATE (nBuAc = 1): N/A
SPECIFIC GRAVITY (water = 1): 7.28
FREEZING POINT: Not established.
SOLUBILITY IN WATER: Insoluble.
BOILING POINT: Not established.
VAPOR PRESSURE: Not established.
pH: Not applicable (N/A)
APPEARANCE AND COLOR: These wires are gray to silver, odorless metal wires

SECTION 10- STABILITY and REACTIVITY

STABILITY: Stable.
DECOMPOSITION PRODUCTS: Metal oxides of, tin and zinc (Solder) .Carbon oxides, a variety organic molecules, tin compounds, zinc oxides, nitrogen oxides and ammonia(Flux).
MATERIALS WITH WHICH PRODUCTS ARE INCOMPATIBLE: Strong acids, strong bases, sulfur and strong oxidizers. Due to the presence of Ammonium Fluoborate, in the flux it is incompatible with glass or other silicate-based substances.
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.

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:

STAY CLEAN ALUMINUM SOLDERING FLUX

PROPER SHIPPING NAME: Corrosive liquids, n.o.s.
(Aminoethylethanolamine, Ammonium Fluoborate))
HAZARD CLASS NUMBER and DESCRIPTION: 8 (Corrosive)
UN IDENTIFICATION NUMBER: UN 1760
PACKING GROUP: III
DOT LABEL(S) REQUIRED: CORROSIVE
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 154

NOTE: Consumer commodity shipments of this product 1 gallon or less in volume may be renamed "Consumer Commodity" and reclassed as ORM-D material. Refer to 49 CFR 173.154(c) for additional information.

ALSOLDER 500 SOLDER (85/15) Not regulated under current U.S. DOT regulations.