ChannelFlux A30
Safety Data Sheet 01/17/17

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Common Name: SILVER-COPPER-ZINC-NICKEL BRAZING ALLOY W/FLUX CHANNEL
Chemical Name: CHEMICAL MIXTURE
Formula: CHEMICAL MIXTURE
Product CAS No.: CHEMICAL MIXTURE
Product Use: Brazing

Supplier: Bellman-Melcor,LLC
Address: 7575 183rd Street
City, St, Zip: Tinley Park, IL 60477 USA
Phone: 1-708-532-5000

FOR CHEMICAL EMERGENCY CALL CHEMTREC (24 HOURS):
1-800-424-9300 (US, Canada, Puerto Rico, Virgin Islands)
1-703-527-3887 (Outside Above Area)

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Silver wire-rod; with brown flux semi soft channel

Odor: none

Flash Point: Metal - Not Applicable Flux - >200 F

Contains SUSPECT CANCER HAZARD - Risk of cancer depends on route, duration and level of exposure. Overexposure may cause kidney and liver damage and blood disorders. May cause respiratory tract irritation. Overexposure to freshly formed fumes may cause a flu-like illness called "metal fume fever". May cause allergic skin and respiratory reaction.

FLUX: May cause eye and skin and respiratory tract irritation. Causes burns which are not immediately visible or painful. Harmful if inhaled, swallowed or absorbed through skin. Inhalation may cause nasal discharge, nosebleed, cough, sore throat, labored breathing, bronchospasm, pulmonary edema and systemic toxicity. Harmful if large amounts are swallowed. May cause gastrointestinal and neuromuscular effects as well as injury to the kidneys and reproductive system. May cause abdominal pain, diarrhea, vomiting, excess salivation, thirst, perspiration and spasms.

Not a fire or explosion hazard in solid form. Finely divided dust may ignite and burn rapidly when mixed with air in the proper proportions. Toxic metal fumes and corrosive fluoride compounds may be released in a fire situation.

ROUTES OF ENTRY

Eyes? YES Skin? YES Inhalation? YES Ingestion? YES

POTENTIAL HEALTH EFFECTS

EYE CONTACT may cause irritation and may cause burns.

SKIN CONTACT may cause irritation or fluoride burns which may not be immediately painful or evident, especially on prolonged contact. Flux may be absorbed through the skin resulting in systemic poisoning. Irritation may be accentuated by heat and humidity.

INHALATION may cause respiratory tract and mucous membrane irritation, coughing and allergic respiratory reactions. Symptoms include nasal discharge and nosebleeds, coughing, sore throat and labored breathing. Severe exposure may cause bronchospasm and pulmonary edema. Absorption may cause systemic poisoning similar to that which occurs with ingestion. INGESTION not normally expected. However, ingestion of large amounts may cause abdominal pain, nausea, vomiting, diarrhea, excess salivation, thirst, perspiration, headache, weakness, dizziness and painful spasms of the limps. COPPER poisoning can result in hemolytic anemia and kidney, liver and spleen damage.

NOTE: Inhalation of fumes may cause a flu-like illness called metal fume fever. Typically metal fume fever begins four to twelve hours after sufficient exposure to freshly formed fumes. The first symptoms are a metallic taste, dryness and irritation of the throat. Cough and shortness of breath may occur along with headache, fatigue, nausea, vomiting, muscle and joint pain, fever and chills. The syndrome runs its course in 24-48 hours.

NOTE: The potential health effects described above only apply if dust or fume is formed.

CARCINOGENICITY

NTP? NO **IARC? NO** **OSHA? NO**

CHRONIC HEALTH HAZARDS

Repeated excessive exposures may cause liver and kidney injury.

Prolonged absorption of BORON COMPOUNDS may cause mild gastrointestinal irritation, loss of appetite, nausea and erythematous rash. Dryness of the skin and mucous membranes, loss of hair, conjunctivitis and kidney injury have also been observed. Reproductive effects have been observed in laboratory animals.

Exposure to FLUORIDES over years may produce mottling of tooth enamel, embrittlement and calcification of bones, and increased calcification of ligaments and vertebrae resulting in spinal stiffness (fluorosis). Prolonged or excessive exposures may result in argyria, a permanent localized blue-grey discoloration of the eyes, skin or mucous membranes.

Excessive ZINC intake has been associated with copper deficiency anemia. Prolonged exposure to SILVER can cause damage to the nasal septum. Refer to Potential Health Effects and Carcinogenicity.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

May adversely affect existing medical conditions, such as eye, skin, respiratory, blood, liver, kidney and/or neurological ailments.

Individuals with Wilson's Disease are at increased risk of COPPER poisoning.

NOTE: See Section 8 for Exposure Limits, Section 11 for Toxicological Information and Section 12 for Ecological Information.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% Wt.
SILVER	7440-22-4	20-40
COPPER	7440-50-8	20-40
ZINC	7440-66-6	20-40
POTASSIUM BIFLUORIDE	7789-29-9	1-5
POTASSIUM FLUOBORATE	14075-53-7	1-7
BORIC ACID	10043-35-3	1-7
POTASSIUM TETRABORATE	1332-77-0	1-5
BORON	7440-42-8	1-3
ALIPHATIC POLYCARBONATE		- - -

INGREDIENT NOTES
NOTE: The percentage by weight values reported for the ingredients in this product represent approximate formulation values. See Section 8 for Exposure Limits and Section 11 for Toxicological Information.

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids open while flushing. If irritation persists, call a physician.

SKIN CONTACT: Immediately wash skin with soap and large amounts of water until no evidence of chemical remains (15-20 minutes). If irritation persists, call a physician.

INHALATION: If exposed to excessive levels of metal fumes, remove to fresh air and seek medical attention.

INGESTION: If swallowed," DO NOT INDUCE VOMITING", give 3-4 glasses of water. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: Metal- Not Applicable, Flux/Binder - >200F
Auto-Ignition: Metal - Not Applicable, Flux/Binder – AP 518 F
LEL: Not Applicable
UEL: Not Applicable

NFPA HAZARD CLASSIFICATION

Health: 2 Flammable: 0 Reactivity: 0

HMIS HAZARD CLASSIFICATION

Health: 2* Flammable: 0 Reactivity: 0 Special: B

*** Indicates the possibility of chronic health effects. See**

Chronic Health Hazards in Section 3 for more information.

EXTINGUISHING MEDIA

Use carbon dioxide, chemical foam or dry chemical. Use any means for extinguishing surrounding fire.

Do NOT use water on metal fires.

SPECIAL FIRE FIGHTING PROCEDURES

Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and protective clothing as specified in 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Not a fire or explosion hazard in solid form. Finely divided dust may ignite and burn rapidly when mixed with air in the proper proportions. Toxic metal fumes and corrosive fluoride compounds may be released in a fire situation.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Contain spillage and scoop up or vacuum. Notification of the National Response Center (800/424-8802) may be required. Refer to EPA, DOT and applicable state and local regulations for current response information.

It is recommended that each user establish a spill prevention, control and countermeasure plan (SPCC). Such plan should include procedures applicable to proper storage, control and clean-up of spills, including reuse or disposal as appropriate (see Section 13: Disposal Considerations).

****NOTE** In the event of an accidental release of this material, the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used (see Section 8: Exposure Control/Personal Protection), and disposal of the material should be in accordance with Section 13: Disposal Considerations.**

SECTION 7: HANDLING AND STORAGE

Wash thoroughly after handling.
Store in a cool, dry location away from incompatible materials.

Avoid breathing any dust, mist or fumes resulting from the use of this product.

Avoid contact with any dusts, mists or fumes resulting from the use of this product.

Use only with adequate ventilation.

Do not eat, drink, or smoke in work area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

INGREDIENT	PEL-OSHA	TLV-ACGIH
SILVER CAS NO.: 7440-22-4	0.01 mg/m3	0.1 mg/m3
COPPER CAS NO.: 7440-50-8	0.1 mg/m3 (Fume) 1 mg/m3 (Dust)	0.2 mg/m3 (Fume) 1 mg/m3 (Dust)
ZINC (AS OXIDE) CAS NO.: 7440-66-6	15 mg/m3 (Total dust) STEL 10 mg/m3 (Total	5 mg/m3 (Fume) 10 mg/m3 (Fume) (Respirable fraction) 5 mg/m3 (Fume)
POTASSIUM BIFLUORIDE CAS NO.: 7789-29-9	2.5 mg/m3 (as F)	2.5 mg/m3 (as F)
POTASSIUM FLUOBORATE CAS NO.: 14075-53-7	2.5 mg/m3 (as F)	2.5 mg/m3 (as F)
BORIC ACID CAS NO.: 10043-35-3	None Established	None Established
POTASSIUM TETRABORATE CAS NO.: 1332-77-0	None Established	None Established
BORON CAS NO. 7440-42-8	None Established	None Established
ALIPHATIC POLYCARBONATE CAS NO. -- -- --	None Established	None Established

NOTE: Both OSHA and the ACGIH list welding fumes as having an exposure limit of 5 mg/m3 (total particulate not otherwise classified). However, the ACGIH states that welding fumes must be tested frequently for individual components which are likely to be present to determine whether specific exposure limits are exceeded.
NOTE: The permissible exposure limits (PELs), threshold limit values (TLVs), potential health effects statements and SARA hazard categories may not be applicable as the hazardous ingredients listed are in the solid form. If dust, powder or fume is generated then these statements will be applicable.
Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only). All ACGIH TLVs refer to the 1998 Standards. All OSHA PELs refer to 29 CFR Part 1910 Air Contaminants: Final Rule, January 19, 1989.

RESPIRATORY PROTECTION
If there is a potential to exceed the TLV, NIOSH/MSHA approved respiratory protection is required. For airborne levels up to 10 times the appropriate TLV's, an air purifying acid gas cartridge respirator would be suitable. If used in a manner that generates a mist, a dust/mist cartridge as well as the acid gas cartridge would be necessary. Above 10 times the TLV, an air supplied full facepiece respirator would be required. If respiratory protection is used, follow all the requirements for respirator programs set forth in the OSHA regulations (29 CFR 1910.139).
VENTILATION

General; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

PROTECTIVE EQUIPMENT

Safety glasses (with side shields).

Rubber or neoprene gloves.
Body protection as necessary to prevent skin contact.

Refer to ANSI/ASC Z49.1-94 (Safety in Welding, Cutting and Allied Processes), published by the American Welding Society, for further information on the selection of personal protective equipment.

PERSONNEL SAMPLING PROCEDURE

For COPPER (dust & fume): Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7029. For METALLIC COMPONENTS: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7300. For ZINC OXIDE: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Method 7502. For FLUORIDE COMPOUNDS: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Methods 7902, 7906.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Silver wire with brown flux coating

Odor: slight

Boiling Point: Not Determined

Specific Gravity (H2O=1): 8.5 to 9.6

Melting Point (°F): Metal: 1220-1305 Flux: 600-1050
Vapor Pressure (mm Hg): Not Applicable

Vapor Density (Air=1): Not Applicable

Evaporation Rate: Not Applicable

% Solubility In Water: Metal: Negligible, Flux: 100%
pH: 7 to 8 SU

SECTION 10: STABILITY AND REACTIVITY

Stability: Generally considered stable.
Avoid: None expected.

INCOMPATIBILITY (Materials to Avoid)
Strong acids and bases, combustible materials, acetylene, ammonia, hydrogen peroxide, oxidizers, sulfur, ammonium nitrate, fluorine, performic acid, phosphorus, selenium, magnesium metal, halogens, hydrogen sulfide.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS
Toxic metal oxides are emitted when heated above the melting point. The amount of fume evolved increases as the temperature rises.

Thermal decomposition may produce oxides of carbon, boron, hydrogen fluoride and potassium.

Polymerization: Polymerization is not expected to occur.
Avoid: Not applicable.

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	% Wt.	LD50	LC50
SILVER CAS NO.: 7440-22-4	20-40	Not Available	Not Available
COPPER CAS NO.: 7440-50-8	20-40	3.5 mg/kg MOUSE, intraperitoneal	Not Available
ZINC (AS OXIDE) CAS NO.: 7440-66-6	20-40	7,950 mg/kg MOUSE, oral	2,500 mg/kg MOUSE
POTASSIUM BIFLUORIDE CAS NO.: 7789-29-9	1-5	Not Available	Not Available
POTASSIUM FLUOBORATE CAS NO.: 14075-53-7	1-7	Not Available	Not Available
BORIC ACID CAS NO.: 10043-35-3	1-7	3,450 mg/kg MOUSE, oral	9,600 ug/m 3/4hr RAT
POTASSIUM TETRABORATE CAS NO.: 1332-77-0	1-5	Not Available	Not Available
BORON CAS NO. 7440-42-8	1-3	2000 mg/kg MOUSE, oral	Not Available
ALIPHATIC POLYCARBONATE CAS NO. -- -- --	1-3	Not Available	Not Available

NOTE: See Sections 3, 8 and 12 for additional information.

SECTION 12: ECOLOGICAL INFORMATION - Not mandatory

SECTION 13: DISPOSAL CONSIDERATIONS - Not mandatory

SECTION 14: TRANSPORT INFORMATION - Not mandatory

SECTION 15: REGULATORY INFORMATION - Not mandatory

SECTION 16: OTHER INFORMATION

REVISIONS Revision Number: 2

PREPARATION INFORMATION

Prepared By: Bellman-Melcor, LLC

Phone Number/Address: See Section 1

This Safety Data Sheet is offered pursuant to OSHA';s Hazard Communication Standard (29 CRF 1910.1200). Other government regulations must be reviewed for applicability to these products. The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations, and management and for persons working with or handling these products. The information presented in the SDS is premised upon proper handling and anticipated uses and is for the material without chemical additions/alterations. We believe this information to be reliable and up-to-date as of the date of publication, but make no warranty that it is. Additionally, if this Safety Data Sheet is more than three years old, please contact the supplier at the phone number listed in Section 1 to make certain that this sheet is the most current.

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