

**MATERIAL SAFETY DATA SHEET**

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200 AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499. STANDARD SHOULD BE CONSULTED FOR SPECIFIC REQUIREMENTS.

**SECTION I (IDENTIFICATION)**

**MANUFACTURER/  
SUPPLIERS NAME:** EUTECTIC CORPORATION  
N94 W14355 Garwin Mace Drive  
Menomonee Falls, WI 53051 USA

**TELEPHONE NUMBER:**  
1-800-558-8524

**PRODUCT NAME:** 21 X Flux

**PRODUCT CLASSIFICATION:** Brazing Flux For Aluminum

**SECTION II (HAZARDOUS INGREDIENTS/IDENTITY INFORMATION)**

**IMPORTANT:** This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section V. The term "Hazardous" in "Hazardous Ingredients" should not only be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200), but also as defined by other regulatory agencies. The chemicals or compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.

**WARNING:** This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer. (California Health & Safety Code 25249.5 et seq.)

<b>INGREDIENTS</b>	<b>CAS NUMBER</b>	<b>Exposure Limit (mg/m<sup>3</sup>)</b>		<b>Percent Ingredients (by weight)</b>
		<b>OSHA PEL</b>	<b>ACGIH-TLV</b>	
Zinc Chloride #	7646-85-7	1.0	1.0 (fume)	60 – 100
Lithium Chloride	7447-41-8	Not Listed	Not Listed	5 – 10
Sodium Fluoride	7681-49-4	2.5 (as F)	2.5 (as F)	1 – 5
Potassium Fluoride	7789-23-3	2.5 (as F)	2.5 (as F)	1 – 5
Lithium Fluoride	7789-24-4	2.5 (as F)	2.5 (as F)	1 – 5

Note: Chronic fluoride absorption can result in osseous fluorosis, increased radiographic density of the bones and mottling of teeth. Exposure to lithium ion is relatively non-hazardous per two NIOSH studies HHE 80-036-422 and HHE 77-59-496. Chronic exposure to lithium may result in neuromuscular effects, hyperactive reflexes, and weight loss. Consult your industrial hygiene department for further information.

**SECTION III (PHYSICAL DATA)**

Blue powder, no characteristic odor.

**SECTION IV (FIRE AND EXPLOSION HAZARD DATA)**

Nonflammable. Brazing flames can ignite combustibles. Refer to American national Standard Z49.1 for fire prevention during welding/brazing. Product is an inherent retardant. Special fire fighting procedures: Metal halide and toxic fumes produced. Use self-contained breathing apparatus (SCBA.)

Rating under National Fire Protection 704: Health - 2; Flammability - 0; Reactivity - 0.

**SECTION V (REACTIVITY DATA)**

**STABILITY:** Stable

**CONDITIONS TO AVOID:** Excessive heat or cold.

**INCOMPATIBILITY (conditions to avoid):** Strong acids, cyanides and sulfides.

**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:** In presence of water and heat, HCl and HF will be given off, along with zinc oxide.

**HAZARDOUS POLYMERIZATION:** Will not occur.

Brazing fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed, the process, procedure, and filler metal used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being soldered (such as paint, plating or galvanizing), the number of workers and volume of the work area, the quality and amount of ventilation, position of workers' head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the material is consumed, fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Fume and gas decomposition products, not the ingredients in the flux, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II plus those from the base metal, coating, etc. as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society).

**Monitor fume levels.** One recommended way to determine the composition and quantity of fumes and gas to which workers are exposed is to take an air sample inside the welder's helmet if worn, or in the worker's breathing zone (see ANSI/AWS F1.1, F1.2, F1.3, F1.4, and F1.5, available from the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126).

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#### SECTION VI (HEALTH HAZARD DATA)

**Threshold Limit Value:** The ACGIH recommended general limit for welding fume NOS (not otherwise specified) is 5 mg/m<sup>3</sup>. The ACGIH 1999 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section V for specific fume constituents that may modify the TLV.

**TARGET ORGAN STATEMENT: DANGER!** May be harmful if swallowed or inhaled. Causes skin and eye burns.

**Effects of Overexposure:**

EFFECTS OF CHRONIC EXPOSURE; Coughing, CNS effects, erythema, nausea, and kidney effects.

EFFECTS OF ACUTE OVEREXPOSURE;

**Swallowing:** Nausea, vomiting. Can cause chemical burn to the digestive system and toxic effects due to lithium ion.

**Skin absorption:** Not known as a skin absorbent. No toxicology data available.

Inhalation: Irritant to respiratory system. Lithium dust and fumes are absorbed through the lungs. Lung damage. Preexisting lung disorders will be aggravated.

**Skin contact:** Dermatitis, possibly a chemical burn. Existing skin disorders will be aggravated.

**Eye contact:** Irritation, possible burn of eye surfaces.

**FUMES AND GASES** can be dangerous to your health. **PRIMARY ROUTES OF ENTRY** are the respiratory system, eyes, and/or skin.

**PREEXISTING** respiratory or allergic conditions may be aggravated in some individuals.

Emergency & First Aid Procedures Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

**Swallowing** - Call a physician at once or your Poison Control Center. Advise of Section II immediately. Corrosive to mucous membranes.

**Skin** - Promptly flush with water to remove all residue. If rash or burn develops, consult a physician. Material is corrosive. With water, possibly HF burns will result.

**Inhalation** - Remove to fresh air. If fumes are inhaled, call a physician. Over inhalation may be harmful.

**Eyes** - Flush with water for at least 15 minutes to remove all residue. **Get medical attention help immediately!**

#### **CARCINOGENICITY**

**WELDING FUMES** (not otherwise specified) are considered to be carcinogenic defined with no further categorization by NIOSH and IARC.

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#### SECTION VII (PRECAUTION FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES)

**Read and understand the manufacturer's instructions and precautionary label on this product.**

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more detail on the following:

**Ventilation:** Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the workers breathing zone and the general area. Train the worker to keep his head out of the fumes. Maintain airflow away from user to exhaust all dusts and fumes so that the TLV is never exceeded.

**Respiratory Protection:** Use respirable fume respirator or air supplied respirator when soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV.

**Eye Protection:** Wear helmet or use face shield and chemical safety goggles. **DO NOT WEAR CONTACT LENSES!**

**Protective Clothing:** Wear head, hand, and body protection which help to prevent injury from flux (see ANSI Z-49.1). At a minimum, this includes chemical impervious gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, and any other equipment used in soldering operations to protect from any contact.

**Waste:** Dispose of any grinding dust or waste residue in accordance with all federal, state, and local regulations. If material is spilled or released, contain spillage, absorb, sweep up, and dispose. Flush area with water to a chemical sewer.

**Storage, Handling:** Store flux in dry area at ambient temperature. Keep under extremely dry and controlled conditions. Wash thoroughly after handling to remove all residue. Remove and professionally wash contaminated clothing before reuse. **Do NOT** breathe fumes.

**TRANSPORTATION INFORMATION:**

**Proper shipping name:** Corrosive Solids N.O.S. (Zinc chloride, lithium chloride)

Hazard class: Class 8

ID & Packing Group Number: UN 1759, PG II

ERG Guide Number: 60

**Toxic Substance Control Act:** All components of this flux are listed within the TSCA inventory.

**SARA Title III Program:** This flux contains > 15% of ZINC CHLORIDE (cas no. 7646-85-7) and are subject to the reporting requirements of EPCRA of 1986 and 40 CFR 372.

**State Right to know programs:**

Pennsylvania: This product contains zinc chloride, which is listed in PA Code Title 34, Hazardous Substance list.

California: As currently manufactured, none of the components are subject to reporting and labeling requirements of proposition 65.

**SUPPLEMENTAL INFORMATION**

IARC: International Agency for the Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

NIOSH: National Institute for Occupational Safety and Health

NTP: National Toxicology Program

PEL: Permissible Exposure Limit

OSHA: U.S. Occupational Safety and Health Administration

TLV: Threshold Limit Value

CAS: Chemical Abstracts Service Registry Number

Exposure limits are subject to change. Contact ACGIH, OSHA, NIOSH, and IARC for current values.

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