

**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:** **Eutectic 1603**

**PRODUCT CLASSIFICATION:** **Flux**

**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</b>	<b>Exposure Limit (mg/m<sup>3</sup>)</b>		<b>Percent Ingredients (by weight)</b>
	<b>NUMBER</b>	<b>OSHA PEL</b>	<b>ACGIH-TLV</b>	
Potassium Bifluoride	7789-29-9	2.5 (as F)	2.5 (as F)	30 – 60
Boric Acid	10043-35-3	Not Listed	Not Listed	15 – 40
Potassium Tetraborate- Tetrahydrate	12045-78-2	Not Listed	Not Listed	15 – 40
Potassium Silicofluoride	16871-90-2	2.5 (as F)	2.5 (as F)	0.2 - 1.5

**SECTION III (PHYSICAL DATA) - Flux****SECTION IV (FIRE AND EXPLOSION HAZARD DATA)**

**Non-Flammable:** Flames used for brazing or soldering can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding/brazing. These products as shipped are non-hazardous, nonflammable, non-explosive, and non-reactive.

Rating under National Fire Protection 704: Health, 2; Flammability, 0; Reactivity, 1.

**SECTION V (REACTIVITY DATA)**

**STABILITY:** Stable

**CONDITIONS TO AVOID:** Excess heat

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

**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:** In the presence of heat fluxes may give off HF.

**HAZARDOUS POLYMERIZATION:** Will not occur.

When flux is consumed during brazing / soldering, the fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed / soldered, 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).

Gaseous reaction products may include carbon monoxide and carbon dioxide. **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 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).

---

#### 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.

**FUMES AND GASES** can be dangerous to your health.

**PRIMARY ROUTES OF ENTRY** are the respiratory system. Other possible routes are eyes, ingestion, and/or skin contact.

**PREEXISTING** respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema).

**SHORT TERM (ACUTE) OVEREXPOSURE** salivation, coughing and choking, and chills. **FLUORIDES** - Fluoride compounds produced may cause eye and skin burns, and pulmonary edema bronchitis. Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhea, muscular weakness, and convulsions. In extreme cases it can cause loss of consciousness and death.

**LONG-TERM (CHRONIC) OVEREXPOSURE:** Irritation of skin. Prolonged absorption of **BORON COMPOUNDS** may cause mild gastrointestinal irritation, loss of appetite, nausea, and erythematous rash. Dryness of skin and mucous membranes, loss of hair, conjunctivitis, and kidney injury have also been observed. Reproductive effects have been observed in laboratory animals. Primary route of entry is the respiratory system. **FLUORIDES** - Overexposure to fluorides can cause serious bone erosion, excessive calcification of the bone and calcification of the ribs, pelvis and spinal column. May cause skin rash.

**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.

**Skin** - Promptly flush with water to remove all residue. If rash or burn develops, consult a physician.

**Inhalation** - Remove to fresh air.

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

#### **CARCINOGENICITY**

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

---

#### 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 welder to keep his head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values.

**Respiratory Protection:** Use respirable fume respirator or air supplied respirator when brazing/welding in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's.

**Eye Protection:** Wear appropriate chemical safety goggles and face shield when handling fluxes.

**Protective Clothing:** Wear head, hand, and body protection that help to prevent injury; including rubber apron and rubber gloves. See ANSI Z49.1.

**Waste:** Spill or release: Clean up and flush remaining material with lots of water. Dispose of any waste residues in accordance with EPA or local regulations.

**Storage:** Keep material sealed and away from heat. Keep out of the reach of children.

**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.

---

The information in this MSDS was obtained from sources we believe are reliable. However, this information is provided without any representation or warranty, expressed or implied, regarding accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability or loss, damage, or expense arising from it or in any way connected with the handling, storage, use, or disposal of the product.