

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:**SILVERCORE # 2 KIT (Rod and flux)****PRODUCT CLASSIFICATION:****Brazing Rod & Flux Kit****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.)

| INGREDIENTS | CAS NUMBER | Exposure Limit (mg/m³) | | Percent Ingredients (by weight) |
|--------------------|-----------------------|--|------------------|--|
| | | OSHA PEL | ACGIH-TLV | |
| Silver # | 7440-22-4 | 0.01 | 0.1 | 40 – 70 |
| Copper # | 7440-50-8 | 0.1 | 0.2 | 15 – 40 |
| Zinc (as oxide) # | 7440-66-6 | 5 | 2 | 15 – 40 |
| Tin | 7440-31-5 | 2 | 2 | 3 – 7 |

SECTION III (PHYSICAL DATA) - Solid rod for brazing**SECTION IV (FIRE AND EXPLOSION HAZARD DATA)**

Nonflammable: Brazing flames can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during brazing/welding.

However, in a finely divided form, this product may ignite when exposed to flame or by reaction with incompatible materials. If present in a fire or explosion, metal oxides or fumes of the constituent metals may be emitted. Use dry chemical, do not use water. A self-contained breathing apparatus with full face-piece operated by positive pressure mode or pressure-demand should be used.

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

SECTION V (REACTIVITY DATA)

Welding fumes cannot be classified simply. The composition and quantity are dependent upon the metal being brazed, the process, procedure, and filler material 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 brazed (such as paint, plating or galvanizing), the number of workers and volume of the work area, the quality and amount of ventilation, position of worker's 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 rod is consumed, the fume and gas decomposition products 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 and 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).

Reasonably expected fume constituents would include complex oxides of copper and zinc. Gaseous reaction products may include carbon monoxide and carbon dioxide. 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).

INCOMPATIBLE MATERIALS: ammonia, nitric acid, ethylene amine, chlorine trifluoride, sulfuric acid, inorganic and organic peroxides, peroxyformic acid, oxalic acid, tartaric acid, 1-bromo-2-propyne, permonosulfuric acid, bromates, chlorates, bromine trifluoride, cupric nitrate, and sulfur.

SECTION VI (HEALTH HAZARD DATA)

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOS (not otherwise specified) is 5 mg/m³. Monitor fume levels. 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 - FUMES AND GASES can be dangerous to your health. Primary routes of entry are the respiratory system, eyes, ingestion, and/or skin. Preexisting respiratory or allergic conditions may be aggravated in some individuals.

COPPER: Individuals with Wilson's Disease are at increased risk of COPPER poisoning. Acute (short-term) exposure may cause respiratory tract irritation, fever, muscle ache, chills, weakness, cough, and a metallic taste. Chronic (long-term) exposure may damage the liver, kidney, spleen, pancreas, and brain.

SILVER: Chronic exposure via inhalation may cause argyria.

TIN: Exposure to fume can cause stannosis (a benign pneumoconiosis), shortness of breath, and respiratory tract infection.

ZINC: Acute exposure to zinc oxide fumes may cause respiratory tract infection and "metal fume fever", which is characterized by cough, metallic taste, dry throat, chills, fever, headache, tightness of chest, nausea, shortness of breath, vomiting, and fatigue. Excessive zinc intake has been associated with copper deficiency anemia.

LONG-TERM (CHRONIC) OVEREXPOSURE - Prolonged or excessive exposures may result in argyria, a permanent localized blue-grey discoloration of the eye, skin, or mucous membranes. Primary route of entry is the respiratory system.

INHALATION to fumes may cause respiratory tract and mucous membrane irritation. 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. 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. First symptoms are a metallic taste, dryness, and irritation of the throat. Cough and shortness of breath may occur along with a headache, fatigue, nausea, vomiting, diarrhea, and painful spasms of the limbs. Copper poisoning can result in hemolytic anemia and kidney, liver, and spleen damage.

See Section VII for precautions.

EMERGENCY & FIRST AID PROCEDURES: Call for medical aid. Employ first aid techniques recommended by The American Red Cross.

INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, begin artificial respiration.

If no detectable pulse, begin Cardiopulmonary Resuscitation. (CPR). Call for medical aid.

SKIN: Wash affected area with soap and water. If rash develops, see a physician.

EYES: Flush with a large amount of fresh water for at least 15 minutes. Get medical attention.

INGESTION: Seek 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 brazing glasses with side shield.

Protective Clothing: Wear head, hand, and body protection which help to prevent injury. See ANSI Z49.1.

Waste: Dispose of any grinding dust or waste residue in accordance with all federal, state, and local regulations. Plastic containers and cardboard packaging can be recycled.

Storage: Keep material sealed and dry before use. Keep remaining product sealed and dry.

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 of loss, damage, or expense arising from it or any way connected with the handling, storage, use, or disposal of the product.

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: **SILVERCORE # 2 KIT**

PRODUCT CLASSIFICATION: **Flux**

SECTION II (HAZARDOUS INGREDIENTS/IDENTITY INFORMATION)

IMPORTANT: This section covers the materials of which the products are manufactured. The fumes and gases produced during normal use of this product is covered in Section V. The term "Hazardous" in "Hazardous Ingredients" should not be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR 1910.1200). The chemicals or compounds subject to reporting under Title III in Section 313 of 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.)

| <u>INGREDIENTS</u> | <u>CAS NO.</u> | <u>EXPOSURE LIMIT (mg/m³)</u> | | <u>PERCENT INGREDIENTS</u> |
|--|----------------|--|------------------|----------------------------|
| | | <u>OSHA PEL</u> | <u>ACGIH TLV</u> | <u>(By Weight)</u> |
| Boric Acid | 10043-35-3 | Not Listed | Not Listed | 15 – 40 |
| Potassium Bifluoride | 7789-29-9 | 2.5 (as F) | 2.5 (as F) | 30 – 60 |
| Potassium Pentaborate - Tetra hydrate | 12229-13-9 | Not Listed | Not Listed | 15 – 40 |
| Potassium Silicofluoride | 16781-90-2 | 2.5 (as F) | 2.5 (as F) | 0.5 – 1.5 |

Contains no other hazardous ingredients. Product is corrosive.

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, non-flammable, non-explosive, and non-reactive.

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

SECTION V (REACTIVITY DATA)

STABILITY: Stable **CONDITIONS TO AVOID:** Excess heat **INCOMPATIBILITY (conditions to avoid):** Strong acids, cyanides, sulfides. **HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:** None known

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/m³. 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.

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.

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 brazing safety goggles.

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.

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

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.