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: **EUTECROD 18**

PRODUCT CLASSIFICATION: **Brazing Rod**

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.)

	CAS	Exposure Limit (mg/m^3)		
INGREDIENTS	**NUMBER**	**OSHA PEL**	**ACGIH-TLV**	**Percent Ingredients (by weight)**
Copper #	7440-50-8	0.1 (as fume)	0.2 (as fume)	40 – 70
Zinc #	7440-66-6	5 (as fume)	5 (as fume)	30 - 60
Tin	7440-31-5	2	2	1 – 5
Nickel #	7440-02-0	1	0.2	0.2 – 1.5

SECTION III (PHYSICAL DATA) – Brazing rod

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.
These products as shipped are non-hazardous, nonflammable, non-explosive, and non-reactive.
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. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II plus those from the 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 of the fume could include: complex oxides of copper zinc and tin. Nickel oxides may also be present. The table below lists reasonably expected fumes that may be generated:

	CAS	Exposure Limit (mg/m^3)	
Substance	**NUMBER**	**OSHA PEL**	**ACGIH-TLV**
Iron Oxide	1309-37-1	10 (as Fe)	5 (as Fe)
Nickel Oxide #	1313-99-1	1 (as Ni)	0.2 (as Ni)

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).

Effects of Overexposure:

SHORT-TERM (ACUTE) OVEREXPOSURE to fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes. **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. Copper poisoning can result in hemolytic anemia and kidney, liver, and spleen damage. Ingestion of large amounts may be fatal. **NICKEL, NICKEL OXIDE** - May cause metallic taste, nausea, tightness in chest, fever, and allergic reactions.

EYE CONTACT causes irritation and may cause burns. **SKIN CONTACT** may cause irritation and possibly fluoride burns which may not be immediately painful or evident, especially on prolonged contact. This material may be absorbed through the skin resulting in systemic poisoning. Symptoms of poisoning are similar to those that occur with ingestion. **INHALATION** 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. Inhalations 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.

LONG-TERM (CHRONIC) OVEREXPOSURE - Prolonged or excessive exposures may result in argyria, a permanent localized blue-gray discoloration of the eye, skin, or mucous membranes. Primary route of entry is the respiratory system. Excessive **ZINC** intake has been associated with copper deficiency anemia. Prolonged or excessive exposures may result in argyria, a permanent localized blue-grey discoloration of the eye, skin, or mucous membranes. **NICKEL, NICKEL OXIDE** - Long term overexposure to nickel products may cause lung fibrosis or pneumoconiosis. **COPPER** may damage the liver, kidney, spleen, pancreas, and brain. Copper poisoning can result in hemolytic anemia and kidney, liver, and spleen damage. Ingestion of large amounts may be fatal. **SILVER:** Chronic exposure via inhalation may cause argyria.

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
NICKEL - is listed as being carcinogenic to humans on **IARC** and **NTP** lists, and is listed by **NIOSH** as being a potential occupational carcinogen (with no further categorization).
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. Metals may 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.

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