

## 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 1: PRODUCT AND COMPANY IDENTIFICATION

**NAME OF PRODUCT:** EUTECTROD 21 FC-E  
**SYNONYMS:** Eutectic 21 FC  
**PRODUCT CODES:** X21FC-24-2.5K, X21FC-32-2.5K

**MANUFACTURER/  
SUPPLIER:** EUTECTIC CORPORATION  
N94 W14355 GARWIN MACE DRIVE  
MENOMONEE FALLS, WI 53051 USA

**TELEPHONE NUMBER** (262) 532-4677  
**FAX NUMBER:** (262) 255-5542  
**EUTECTIC WEBSITE:** [www.eutectic.com](http://www.eutectic.com)

**PRODUCT CLASSIFICATION:** Flux Coated Brazing Rod for Aluminum

### SECTION 2: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Odorless coated wire. Chemically stable and inert. Does not pose a fire hazard. **Non-Flammable:** Flames used for brazing can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding.

**HEALTH DANGER:** Toxic. Danger of serious damage to health by prolonged exposure through inhalation.

**ROUTES OF ENTRY:** Primary route of entry is the respiratory system. Other possible routes are eyes, ingestion, and/or skin contact.

**POTENTIAL HEALTH EFFECTS:**

**EYES:** Inert foreign body hazard only.  
**SKIN:** Prolonged contact may result in rashes/irritations due to drying of the skin and/or mechanical abrasion related to skin-to-clothing contact or skin-to-skin contact. May cause allergic skin reaction.  
**INGESTION:** No adverse health effects anticipated by this route during proper industrial handling.  
**INHALATION:** Exposure to dust may aggravate pre-existing respiratory conditions.

**ACUTE HEALTH HAZARDS:** see Section 11

**CHRONIC HEALTH HAZARDS:** see Section 11

**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.).

**WARNING:** avoid breathing welding fumes and gases; they may dangerous to your health. Always use adequate ventilation and use appropriate personal protection equipment.

**CARCINOGENICITY**

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

### GHS classification

Hazard categories:

Acute toxicity: Acute Tox. 4

Serious eye damage/eye irritation: Eye Irrit. 2

Reproductive toxicity: Lact.

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

Harmful if swallowed.

Causes serious eye irritation.

May cause harm to breast-fed children.

May cause damage to organs through prolonged or repeated exposure.

Although this product does not require a hazard warning label in all countries, we recommend that the safety advice should be observed:

### Label elements

Signal word: Warning

Pictograms: GHS07-GHS08



### Hazardous components

fluorides

cryolite, trisodium hexafluoroaluminate

### Hazard statements

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H362 May cause harm to breast-fed children.

H373 May cause damage to organs through prolonged or repeated exposure.

### Precautionary statements

P285 In case of inadequate ventilation wear respiratory protection.

P314 Get medical advice/attention if you feel unwell.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P501 Dispose of contents/container to waste treatment facility in accordance with local and national regulations.

### CAUTION:

Limited evidence of carcinogenic effect (welding fumes).

May cause sensitization by skin contact

Brazing/welding fumes and vapors may cause metal fume fever (headache, dizziness, dryness, cough, nausea, and fever) and these symptoms may appear 4-12 hours after exposure

### Additional advice on labeling

As an article the product does not need to be labeled in accordance with EC-directives or respective national laws.

**SECTION 2 NOTES:** Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**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 8. 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 #.

INGREDIENTS	CAS NUMBER	Exposure Limit (mg/m <sup>3</sup> )		Percent Ingredients (by weight)
		OSHA PEL	ACGIH-TLV	
Aluminum #	7429-90-5	5	5	40 – 70
Potassium Chloride	7447-40-7	Not listed	Not listed	10 – 30
Sodium Chloride	7647-14-5	Not listed	Not listed	10 – 30
Silicon	7440-21-3	5	10	3 – 13
Lithium Hexafluoroaluminate	13821-20-0	2.5 (as F)	2.5 (as F)	5 – 10
Aluminum Fluoride	7784-18-1	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
Potassium Hexafluoroaluminate	13775-52-5	2.5 (as F)	2.5 (as F)	1 – 5
Sodium Hexafluoroaluminate	15096-52-3	2.5 (as F)	2.5 (as F)	1 – 5

**CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS**

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Aluminum #	7429-90-5	231-072-3	F; R11-15
Potassium Chloride	7447-40-7	231-211-8	No
Sodium Chloride	7647-14-5	231-598-3	No
Lithium Hexafluoroaluminate	13821-20-0	237-509-4	No
Silicon	7440-21-3	231-130-8	No
Aluminum Fluoride	7784-18-1	232-051-1	No
Lithium Fluoride	7789-24-4	232-152-0	No
Potassium Hexafluoroaluminate	13775-52-5	237-409-0	No
Sodium Hexafluoroaluminate	15096-52-3	239-148-8	T; R48/23/25 - Xn; R20/22 - N; R51-53

**SECTION 3 NOTES:** Exposure limits are subject to change. Contact ACGIH and OSHA for current values. See Section 16 for European Council Directive 67/548/EEC R-phrases

**SECTION 4: FIRST AID MEASURES**

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

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

**SKIN:** Wash affected area with soap and water to remove dust or particles. If rash develops, see a physician. Get medical attention for irritations that persist.

**INGESTION:** Seek medical attention.

**INHALATION:** Remove to fresh air. If breathing is difficult administer oxygen. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately.

**GENERAL:** Move to fresh air and call for medical aid.

**SECTION 4 NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:**

When the brazing rod is consumed, fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of materials in Section 3, plus those from the base metal, 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 aluminum.

**SECTION 5: FIRE FIGHTING MEASURES**

**Non-Flammable:** Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding. These products as shipped are non-hazardous, nonflammable, non-explosive, and non-reactive.

**FLAMMABLE LIMITS IN AIR (% by volume): UPPER: N/A LOWER:N/A**

**FLASH POINT: N/A**

**AUTOIGNITION TEMPERATURE: N/A**

**NFPA HAZARD CLASSIFICATION:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Other:

**RATING UNDER NATIONAL FIRE PROTECTION 704:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Protection:

**EXTINGUISHING MEDIA:** Use the extinguishing media recommended for the burning material and fire situation.

**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus as fume or vapors may be harmful.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None

**HAZARDOUS DECOMPOSITION PRODUCTS:** Reasonably expected fume constituents of the fume could include complex oxides of aluminum, hydrogen fluoride (HF), fluorides

**SECTION 5 NOTES:** None

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**ACCIDENTAL RELEASE MEASURES:** Solid objects may be picked up and placed in a container. Wear protective clothing and make sure that the solid objects are at room temperature before handling.

**PERSONAL PRECAUTIONS:** Gloves should be worn when handling to prevent cuts.

**ENVIRONMENTAL PRECAUTIONS:** Do not flush residues into waterways.

**SECTION 6 NOTES:** None

**SECTION 7: HANDLING AND STORAGE**

**HANDLING:** Handle with care to avoid cuts and to keep the wire from piercing the skin. Wear gloves when handling welding consumables. Avoid exposure to dust and do not ingest. Some individuals can develop and allergic reaction to certain materials. Keep all warning labels and identification labels on the product.

**STORAGE:** Keep material sealed and dry before use and do not remove product identification label or warning label. After using, keep remaining product sealed and dry and do not remove product identification label or warning label.

**SECTION 7 NOTES:** None

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**



**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:

**SPARKS** can injure eyes and burn skin. Wear correct hand, eye, head, and body protection.

**ENGINEERING CONTROLS:** Proper ventilation must be maintained.

**VENTILATION:** Use enough ventilation, local exhaust at the spray area, or both, to keep the fumes and gases below the TLV's in the workers breathing and the general area. Train the worker 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 in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's.

**EYE PROTECTION:** Wear safety glasses with side shields, face shield, and/or goggles to protect against airborne dust.

**PROTECTIVE CLOTHING:** Wear gloves when using or prolonged contact with skin or repeated contact with skin is likely.

Wear hand and body protection to prevent injury. See ANSI Z49.1 for further information.

**SKIN PROTECTION:** Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturizer when excessive or prolonged contact with skin is likely.

**WORK HYGIENIC PRACTICES:** Do not eat or consume beverages in the work area.

**OTHER PROTECTIVE EQUIPMENT:** Full protective equipment normally used in soldering / brazing operation so as to prevent any contact. Review operations to avoid contact with hazardous gas, liquid, or solid. See also:

29CFR 1910.132 - 29 CFR 1910.140 Personal Protective Equipment  
29 CFR 1910.251 - 29 CFR 1910.257 Welding, Cutting and Brazing

**EXPOSURE GUIDELINES:** Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. When the rod is consumed, fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. The fume and decomposition products, not the ingredients in the rod, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of materials in Section 3, plus those from the base metal, 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 aluminum. Refer to Section 11 for more information about welding fumes.

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 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).

**SECTION 8 NOTES:** Exposure limits are subject to change. Contact ACGIH, OSHA, NIOSH, and IARC for current values.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Solid appearance, non volatile, wire with a flux coating. No odor.

**MELTING POINT:** > 1000 °F (> 540 °C)

**SECTION 9 NOTES:** None

## SECTION 10: STABILITY AND REACTIVITY

**GENERAL:** These items are only intended for normal welding / brazing purposes.

**STABILITY:** Stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Will not occur

**REACTIVITY:** Contact with chemical substances like acids or strong bases could cause generation of gas.

### HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. Reasonably expected fume constituents of the fume could include complex oxides of aluminum.

Refer to applicable national exposure limits for the fume compounds. The employer should contact an occupational health professional for doing fume monitoring to determine fumes emitted and to ensure compliance to the applicable country limits.

**SECTION 10 NOTES:** Other country exposure limits may be different and the appropriate country standards should be used.

## SECTION 11: TOXICOLOGICAL INFORMATION

**EFFECTS OF OVEREXPOSURE** - welding and brazing may create one or more of the following health hazards:

**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).

### ACUTE TOXICITY:

**SHORT TERM (ACUTE) OVEREXPOSURE):** to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. **PRIMARY ROUTE OF ENTRY** is the respiratory system.

**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.

### CHRONIC TOXICITY:

**LONG TERM (CHRONIC) OVEREXPOSURE:** is believed by some investigators to affect pulmonary functions. **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.

**SECTION 11 NOTES:** Monitor fume levels and do not exceed permissible limits.

## SECTION 12: ECOLOGICAL INFORMATION

**MATERIAL:** Welding consumables and materials can degrade into the components used to manufacture the product. Avoid exposure to conditions that could lead to accumulation in soils and groundwater.

**CONTAMINATED PACKAGING:** Empty containers should be taken for local recycling, recovery, or waste disposal. Metals may be recycled.

**SECTION 12 NOTES:** None.

**SECTION 13: DISPOSAL CONSIDERATION**

**WASTE DISPOSAL METHOD:** Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be re-cycled.

**U.S.A. RCRA:** Ingredients in this product may be considered "hazardous material" in other countries and they may require special disposal methods. Contact your local municipality for the proper disposal method.

Residues from welding consumables and processes could degrade and accumulate in groundwater.

**SECTION 13 NOTES:** None

**SECTION 14: TRANSPORTATION INFORMATION**

**DOMESTIC TRANSPORT REGULATIONS (USA):** DOT - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (CANADA):** TDG - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (MEXICO):** MEX - not regulated.

**INTERNATIONAL TRANSPORT REGULATIONS:**

ICAO – not regulated

IATA – not regulated

IMDG / IMO – not regulated

**OTHER AGENCIES:** No international regulations or restrictions are applicable.

**SECTION 14 NOTES:** Handle with care to avoid damaging the product and keep product dry. Do not remove product identification label or warning label.

**SECTION 15: REGULATORY INFORMATION**

**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 information. Before using this product, understand and your employer's safety practices.

**BRAZING SPARKS** can injure eyes and burn skin. Wear correct hand, eye, head, and body protection.

**U.S. FEDERAL REGULATIONS:** Under the OSHA Hazard Communication Standard these products are considered as hazardous.

**U.S. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT):** All constituents of these products are on the TSCA inventory list or are excluded from listing.

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)/SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):**

Reportable Quantities (RQ's) and/or Threshold Planning Quantities (TPQ's):

Ingredient name:	RQ (lb)	TPQ(lb)
Product is a solid solution in the form of a solid article	-	-

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to our Local Emergency Planning Committee.

**EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:**

The following metallic components are listed as SARA 313 “TOXIC CHEMICALS” and are potentially subject to annual SARA 313 reporting. See Section 3 for percent and if the ingredient is present.

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>DISCLOSURE THRESHOLD</u>
Chromium & chromium compounds	7440-47-3	1.0 % de minimis concentration
Chromium VI	Not listed	0.1 % de minimis concentration
Barium compounds	Not listed	1.0 % de minimis concentration
Cobalt	7440-48-4	0.1 % de minimis concentration
Copper	7440-50-8	1.0 % de minimis concentration
Manganese	7439-96-5	1.0 % de minimis concentration
Nickel	7440-02-0	0.1 % de minimis concentration
Aluminum (fume or dust)	7429-90-5	1.0 % de minimis concentration
Silver	7440-22-4	1.0 % de minimis concentration

Package Labeling:

Additional advice on labeling

As a finished article the product does not need to be labeled in accordance with EC-directives or respective national laws.

**SECTION 15 NOTES:** International rules may vary and the appropriate regulations should be followed as defined by the country where the products are used.

**SECTION 16: OTHER INFORMATION**

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format.

Prepared by: Eutectic Corporation, USA

**Aluminum**

R11 : Highly flammable. (powder form-not in wire form)

R15 : Contact with water liberates extremely flammable gases. (not in wire form)

**Sodium Hexafluoroaluminate**

R20/22 : Harmful by inhalation and if swallowed.

R48/23/25 : Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**SUPPLEMENTAL INFORMATION – DEFINITIONS:**

IARC: International Agency for the Research on Cancer  
 NIOSH: National Institute for Occupational Safety and Health  
 OSHA: U.S. Occupational Safety and Health Administration  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 CAS: Chemical Abstracts Service Registry Number  
 EINECS: European Inventory of Existing Chemical Substances

PEL: Permissible Exposure Limit  
 NTP: National Toxicology Program  
 TLV: Threshold Limit Value  
 ECD: European Council Directive  
 GHS: Globally Harmonized System

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

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