

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: EUTEC SOL 682
SYNONYMS: EUTEC SOL 682 FLUX : EUTECTIC 682 FLUX
PRODUCT CODES: XF682-227G, F682-24oz

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

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night:

Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

PRODUCT USE: Soldering Flux

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Target organ statement: DANGER: Causes severe burns to skin, eyes, and respiratory system. May be fatal if swallowed or inhaled.

Does not pose a fire hazard as shipped. **Non-Flammable:** However, heat and flames used during brazing and soldering can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding and soldering.

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

HAZARDS:

Indications of danger : Corrosive, Harmful, Dangerous for the environment

R-phrases:

Contact with acids liberates very toxic gas.

Harmful if swallowed.

Causes burns.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

DANGER

GHS PICTOGRAMS; 07, 05, 09, 08, 06



Danger

Corrosive

Environment

Respiratory

Toxic

Zinc chloride solution, hydrochloric acid solution

Hazard statements

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H360FD May damage fertility. May damage the unborn child.

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.

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.).

CARCINOGENICITY

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

See additional information in Section 3 for ingredients.

Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions. Spatter and flames from brazing and soldering may cause burns and start fires.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

IMPORTANT: This section covers the materials from which these products are manufactured. Any of 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 #.

Exposure Limit (mg/m³)

INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH -TLV	Percent Ingredients (by weight)
Zinc Chloride #	7646-85-7	1	1	40 – 70
Ammonium Chloride	12125-02-9	Not Listed	20	5 – 10
Hydrochloric Acid #	7647-01-0	7.0 (ceiling)	2.98 (ceiling)	5 – 10
Ethylene Glycol #	107-21-1	Not Listed	100(ceiling)	1 – 5

CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Zinc Chloride #	7646-85-7	231-592-0	C; R34 - Xn; R22 - N; R50-53
Ammonium Chloride	12125-02-9	235-186-4	Xn; R22 - Xi; R36
Hydrochloric Acid #	7647-01-0	231-595-7	R34, R37
Ethylene Glycol #	107-21-1	203-473-3	Xn; R22

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 and inform them of the ingredients from Section 3. Employ first aid techniques recommended by The American Red Cross.

- Ingestion:** Immediately call a doctor or your poison control center. Inform them of the ingredients listed in Section 3. Swallowing flux may be fatal. Flux is corrosive to mucous membranes.
- Skin:** Promptly flush with water for 15 minutes to remove all residue. If rash or burn develops, consult a physician. Material is corrosive. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.
- Inhalation:** Remove to fresh air. If fumes are inhaled, call a physician.
- Eyes:** Flush with water for at least 15 minutes to remove all residue. Hold eyelids apart during irrigation. **Get immediate medical help - blindness may result.**

SECTION 5: FIRE FIGHTING MEASURES

Non-Flammable These products as shipped are nonflammable, non-explosive, and non-reactive.

Flashpoint: Will not burn.

NFPA HAZARD CLASSIFICATION:

Health: 1 Flammability: 0 Reactivity: 0 Special Hazard -----

EXTINGUISHING MEDIA: water, fog, or foam.

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire, toxic fumes may be produced. Use of full protective equipment required.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dense smoke may be generated in a fire.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may release zinc oxide and zinc chloride.

Refer to American National Standard Z49.1 for fire prevention during welding and soldering.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Do not discharge into the drain or bodies of water. Contain spill, absorb, sweep up and dispose of in accordance with Federal, State, and Local regulations.

PERSONAL PRECAUTIONS: Wear head, hand, and body protection that help to prevent injury; including rubber apron and rubber gloves.

ENVIRONMENTAL PRECAUTIONS: Do not discharge into the waterways or drains.

SECTION 7: HANDLING AND STORAGE

HANDLING: Avoid exposure to product; do not ingest and avoid contact with eyes. Some individuals can develop an allergic reaction to certain materials. Do not eat, drink, or smoke when using this product. Wash thoroughly after using this product.

STORAGE: Keep material sealed and stored at room temperature. After opening keep remaining product sealed and in original labeled packaging. Store at ambient room temperature and do not store in steel containers. Do not store near food.

Other precautions: Do NOT breathe fumes. Professionally wash contaminated clothing before reuse. Existing lung disorders will have increased toxic susceptibility.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

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

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

VENTILATION: Use enough ventilation, local exhaust at the work area, or both, to keep the fumes and gases below the TLV's / PEL's in the workers breathing zone 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. Adhere to environmental regulations for exhausts.

RESPIRATORY PROTECTION: Do NOT breathe fumes. If the workstation is not properly ventilated to exhaust all fumes and vapors, use a NIOSH approved respirator. Monitor fume levels and keep exposure below the TLV's.

EYE PROTECTION: Wear appropriate brazing / soldering chemical 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.

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, along with rubber gloves.

OTHER PROTECTIVE EQUIPMENT: Full protective equipment normally used in soldering 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

WORK HYGIENIC PRACTICES: Professionally wash contaminated clothing before re-use. Food and drink should not be consumed or neither tobacco products used, nor cosmetics applied in area where flux exposures are possible.

EXPOSURE GUIDELINES Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. See Section 3 for ingredients.

EFFECTS OF OVEREXPOSURE - brazing or soldering 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).

Brazing and soldering fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or soldered, the process, procedure, and the 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 or soldered (such as paint, plating, etc.), the volume of the work area, the quality and the amount of ventilation, position of the 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 material 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 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 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).

Gaseous reaction products may include carbon monoxide and carbon dioxide. Monitor fume levels.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Transparent liquid, lightly acidic odor
Active temperature range: 450 °F – 460 °F (230 °C – 237 °C)
Flash point: n.a.
Solubility in water: High
Viscosity: 28 centipoises at 71.6 °F / 28 centipoises at 22 °C
Vapor density: Not determined

pH-Value: 1
Boiling point: 203 °F (95 °C)
Melting point: Not determined
Specific gravity: Not determined
Vapor pressure: Not determined

SECTION 10: STABILITY AND REACTIVITY

GENERAL: This item is only intended for use in soldering applications.

STABILITY: Product is chemically stable and non-reactive.

CONDITIONS TO AVOID: Flame and excess heat.

MATERIALS TO AVOID: Cyanide - may release toxic HCN. Sulfide - may release toxic hydrogen sulfide.

HAZARDOUS POLYMERIZATION: Will not occur.

REACTIVITY: None.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Zinc oxide.

In other countries the exposure limits listed in Section 3 may be different and the appropriate country standards should be used.

SECTION 11: TOXICOLOGICAL INFORMATION

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**. Brazing/soldering vapors and fumes from some brazing/soldering fluxes may cause metal fume fever. Symptoms are similar to influenza type sickness, including chills, fever, head and muscle ache, tightness in chest, dryness of nose, mouth, muscular pain, nausea, and vomiting. Symptoms can appear within several hours of exposure and may last 6 - 24 hours. Consult a doctor immediately if any of these symptoms develop after using the product.

POTENTIAL HEALTH EFFECTS:

- Swallowing:** May cause burns of mouth and throat.
Inhalation: Irritation to respiratory system. Coughing and sneezing. Existing lung disorders will be aggravated. Severe exposure may cause pulmonary edema. Metal fume fever may result from inhaling zinc oxide, which is a possible decomposition product at high temperatures.
Skin Contact: Dermatitis, possible chemical burns, and corrosive to skin. Existing disorders will be aggravated.
Eye Contact: Irritation to the eyes, tearing, burn of the eye surfaces, corrosive to the eyes, may cause blindness.

SHORT TERM (ACUTE) OVEREXPOSURE:

HYDROCHLORIC ACID: WARNING: STRONG ACID – HANDLE WITH CARE! CAUTION: Contact with common metals produces hydrogen, which forms explosive mixtures in air. Corrosive liquid may cause permanent visual and tissue damage. Excessive inhalation may cause pulmonary edema, circulatory failure, respiratory system failure, and collapse. If ingested, may be fatal, severe burns to mouth, throat stomach, nausea and vomiting.

CHLORIDE COMPOUNDS: (zinc chloride, ammonium chloride): Overexposure may cause severe irritation or burns of the eyes and skin. Chloride compounds will form strong acids in the presence of water and may give off HCL gas in a fire. Ingestion will cause nausea.

ETHYLENE GLYCOL – Can affect the body if contact with the eyes, open skin wounds, or if ingested. Single dose oral toxicity is moderate. Excessive ingestion may cause central nervous system effects, pulmonary and kidney effects, serious injury or death. Inhalation of vapors may cause respiratory irritation. Ethylene glycol is present in small percentages by weight and should cause very little problems for the welder if proper ventilation procedures are used.

LONG TERM (CHRONIC) OVEREXPOSURE:

ETHYLENE GLYCOL: Long term overexposure to ethylene glycol may affect the central nervous system and eyes.

EXPOSURE TO FLUX: Contact burns, irritation to skin (scarring), eyes, and respiratory system. Possible liver and kidney effects.

Monitor fume levels when using this product.

SECTION 12: ECOLOGICAL INFORMATION

CONTAMINATED PACKAGING: Empty containers should be taken for local recycling, recovery, or waste disposal. Contaminated flux should be disposed of in accordance with Federal, State, and Local regulations.

SPILLS: Contain spill, absorb, sweep up and dispose of in accordance with Federal, State, and Local regulations.

SECTION 13: DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Dispose of any waste residues in accordance with Federal, State, and Local regulations.

Review U.S. Federal Hazardous Waste Regulations §40 CFR261 to determine if this is hazardous in USA. Please be advised that state and local requirements, or other country requirements, for waste disposal may be more restrictive or otherwise different than U.S. Federal regulations. It is not possible to give this product a waste code number according to the European waste catalogue because only the intended use of the user consents the assignment of a specific code number.

SECTION 14: TRANSPORTATION INFORMATION

TRANSPORT REGULATIONS (USA):

ID UN 3264

Department of Transportation (Proper shipping name): Corrosive Liquids, acidic, inorganic, NOS

Pack. Group Number: PG III

Hazard class: 8

LABEL: CORROSIVE

CONTAINS: Zinc Chloride and Hydrochloric Acid

Toxic Substances Control Act: all components of this compound are listed within the TSCA inventory.

SARA Title II Program: This product contains the following toxic chemicals subject to reporting requirements of EPCRA of 1986 and 40 CFR 372:

<u>Cemical name</u>	<u>CAS nr.</u>	<u>Concentration</u>
Zinc compounds:	N/E	< 70 %

Other regulations may apply when shipping this material and are in the process of change or update, verify all applicable regulations prior to shipment either domestically, internationally via air, ground, or water.

This information must be included in all SDS that are copied and distributed for this material.

Handle with care to avoid damaging the product. Do not store near food.

SECTION 15: REGULATORY INFORMATION

Read and understand the manufacturer's Safety Data Sheet before handling or disposing of this product.

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

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 to determine if the ingredient is present and for the percent.

<u>INGREDIENT NAME</u>	<u>CAS</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

State Right to Know Programs:

Pennsylvania: All components are listed in PA code Title 34, Hazardous Substance List.

California: As currently manufactured this material contains no compounds subject to reporting and labeling requirements of Proposition 65.

Miscellaneous: Material contains in excess 10% Zinc Chloride: Classified as a marine pollutant.

Other regulations may apply when shipping this material and are in the process of change or update, verify all applicable regulations prior to shipment either domestically, internationally via air, ground, or water.

International rules may vary and the appropriate regulations should be followed as defined by the country where the product is used.

SECTION 16: OTHER INFORMATION

This Safety Data Sheet has been revised for corrected part number for F682-24oz and replaces November 1, 2014 issue.

Prepared by: Eutectic Corporation, USA

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 safe use of product.

R - Phrases

Hydrochloric Acid

R34 : Causes burns.

R37 : Irritating to respiratory system.

Zinc Chloride #

R22 : Harmful if swallowed.

R34 : Causes burns.

R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Ammonium Chloride

R22 : Harmful if swallowed.

R36 : Irritating to eyes.

Ethylene Glycol #

R22 : Harmful if swallowed.

S-phrases

Hydrochloric Acid

S1/2 : Keep locked up and out of the reach of children.

S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Zinc Chloride #

S1/2 : Keep locked up and out of the reach of children.

S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.

S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S60 : This material and its container must be disposed of as hazardous waste.

S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

Ammonium Chloride

S2 : Keep out of the reach of children.

S22 : Do not breathe dust.

Ethylene Glycol #

S2 : Keep out of the reach of children.

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

The information in this SDS 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.