

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: ALUTEC 29210
SYNONYMS: EUTECTIC 29210 Powder
PRODUCT CODES: 29210-5K

**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

PRODUCT CLASSIFICATION: Thermal Spray Powder

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Odorless powder mix. Flames used for powder spraying can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding. Dangerous when wet.

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 be 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.

Package Labeling:

Additional advice on labeling - although this product does not require a hazard warning label in all countries, we recommend that the safety advice should be observed:

DANGER

GHS PICTOGRAM: GHS02



Contains: Aluminum powder

Hazard Statements:

H228: Flammable solid

H261: In contact with water releases flammable gasses

Precautionary Statements:

P285 In case of inadequate ventilation wear respiratory protection

P314 Get medical advice if you do not feel well

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

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. 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
Aluminum #	7429-90-5	5	5 (fume)	60 – 100
Silicon	7440-21-3	5	10	7 – 13

CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS IF PRESENT

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Aluminum Oxide #	1344-28-1	215-691-6	No
Aluminum #	7429-90-5	231-072-3	F; R11-15
Silicon	7440-21-3	231-130-8	No

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 and S-phrases if applicable.

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. Do not rub eyes. 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. Do not induce vomiting.

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 5: FIRE FIGHTING MEASURES

GENERAL FIRE HAZARDS: Not expected to be a fire hazard as sold. High concentration of airborne dust may form an explosive mixture in air. Dangerous when wet.

NFPA HAZARD CLASSIFICATION:

Health: 0

Flammability: 1

Reactivity: 1

Other:

HMS HAZARD CLASSIFICATION:

Health: 0

Flammability: 1

Reactivity: 1

Protection:

EXTINGUISHING MEDIA: In case of fire, use approved class D fire extinguisher or smoother with dry sand, dry clay, or dry ground limestone. Do not use water, dry chemical, CO₂ or halon.

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire wear suitable respiratory equipment with positive air supply. Avoid creation of dust and avoid inhaling any combustion products.

UNUSUAL FIRE AND EXPLOSION HAZARDS: If a dust cloud is generated, extinguish all sources of ignition.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition products may yield metallic oxides. Hydrogen may form with contact with water.

Electrically ground/bond all equipment and containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Avoid generating dust. Powder may be swept up and placed in a container for proper disposal.

PERSONAL PRECAUTIONS: If dust is present, use particle filter dust mask and if a dust cloud is generated, extinguish all sources of ignition. Wear personal protective clothing and ensure adequate ventilation.

ENVIRONMENTAL PRECAUTIONS: Do not discharge powder into drains or bodies of water.

SECTION 7: HANDLING AND STORAGE

HANDLING: Avoid exposure to dust and do not ingest. Avoid contact with skin, eyes, and clothing. Some individuals can develop an allergic reaction to certain materials. Sweep up and dispose of product. Do not wash area with water or allow powder to come into contact with water. Wash hands and face thoroughly before eating, drinking, or smoking. 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

STORAGE: Keep material sealed and dry before use and store a cool location and in the original labeled container. After using, keep remaining product sealed and dry and keep powder in original labeled container and store in a cool and dry location. Store and use powder away from water, acids, alkali, halogens, and other combustible materials.

Dust clouds of this material can form an explosive mixture in air. Thermal spray operations should include an explosion proof ventilation system (i.e. a wet collector that is designed to prevent the accumulation of hydrogen). Remove all residual spray powder from the collector at the end of each shift. Electrically ground/bond all equipment and containers.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION



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

Always use adequate ventilation and wear appropriate personal protection. Do not breathe welding fumes and gases; they are dangerous to your health.

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 spraying 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.

EXPOSURE GUIDELINES: Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits.

EFFECTS OF OVEREXPOSURE - Powder spraying 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).

Powder spray fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being sprayed, the process, procedure, and the powder 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 sprayed (such as paint, plating, or galvanizing), 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 powder, 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).

Reasonably expected fume constituents of the fume could include complex oxides of aluminum. Refer to Section 11 for more information about welding fumes.

<u>SUBSTANCE</u>	<u>CAS NUMBER</u>	<u>Exposure Limit (mg/m³)</u>	
		<u>OSHA PEL</u>	<u>ACGIH-TLV</u>
Aluminum fume (#)	None listed	N.E.	5

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). Also see AWS Publications AWS C2.1 "Recommended Safe Practices for Thermal Spraying" and AWS TSS, "Thermal Spraying, Practice, Theory and Application" for more information on thermal spraying.

In other countries the exposure limits listed above may be different and the appropriate country exposure limits should be used.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Grey powder. No odor.

pH: not available

Flash Point: not applicable

Boiling Point: 4442° F (2450 °C)

Lower Flammability Limit (LFL): Not available

Auto Ignition: Not available

Vapor Density: Not available

Melting Point: Not available

VOC: 0 %

Specific Gravity: 2.7

Upper Flammability Limit (UFL): Not available

Solubility (H₂O): Insoluble

Aluminum powder mix, uncoated, non- pyrophoric

SECTION 10: STABILITY AND REACTIVITY

GENERAL: This item is only intended for use in thermal spray applications. Avoid generating dust.

STABILITY: Not stable. Product may spontaneously combust.

HAZARDOUS POLYMERIZATION: Will not occur.

MATERIALS TO AVOID: Store away from water, acid alkali, oxidizing agents, halogens and other combustible materials.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Hydrogen may form from powder with contact to water.

Keep material sealed in original, labeled container and away from water and moisture.

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 8 for specific fume constituents that may modify the **TLV**.

SHORT TERM (ACUTE) OVEREXPOSURE to spray powder fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Metal fume fever is a temporary flu-like condition characterized by chills, fever, muscle aches and pains, nausea and vomiting. Typically the symptoms appear within a few hours after exposure and subside within 2-3 days with no permanent effects.

LONG TERM (CHRONIC) OVEREXPOSURE is believed by some investigators to affect pulmonary functions. Target organs are eyes, skin, and respiratory system. **ALUMINUM** – overexposure can result in lung damage and has been associated with asthma-like syndrome. Accumulation of aluminum in the body may result in neurological damage, anemia, and bone softening. Repeated overexposure to aluminum oxide may lead to pulmonary fibrosis, a progressive lung disorder. See Section 2 for any carcinogenic effects.

SECTION 12: ECOLOGICAL INFORMATION

GENERAL INFORMATION: Product may be toxic to aquatic life and may cause long-term adverse effects on the aquatic environment.

CONTAMINATED PACKAGING: Empty containers should be taken for local recycling, recovery, or waste disposal. Powder may be recycled. Do not flush powder into surface water or sanitary sewers.

SECTION 13: DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Dispose of any powder and waste residues in accordance with EPA or local regulations. Where possible, recycling is the preferred method of disposal.

100207 WASTES FROM THERMAL PROCESSES: wastes from iron and steel industry; solid wastes from gas treatment containing dangerous substances. Classified as hazardous waste.

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.

SECTION 14: TRANSPORTATION INFORMATION

DOMESTIC TRANSPORT REGULATIONS (USA):

DOT - not regulated.

DOMESTIC TRANSPORT REGULATIONS (CANADA):

TDG – Aluminum silicon powder, uncoated

Hazard class: 4.3

ID & Pack. Group Number: UN 1398, PG III

Label: "DANGEROUS WHEN WET"

INTERNATIONAL TRANSPORT REGULATIONS:

ICAO – Aluminum silicon powder, uncoated

Hazard class: 4.3

ID & Pack. Group Number: UN 1398, PG III

Label: "DANGEROUS WHEN WET"

IATA – Aluminum silicon powder, uncoated

Hazard class: 4.3

ID & Pack. Group Number: UN 1398, PG III

Label: "DANGEROUS WHEN WET"

IMDG / IMO – Aluminum silicon powder, uncoated

Hazard class: 4.3

ID & Pack. Group Number: UN 1398, PG III

Label: "DANGEROUS WHEN WET"

Handle with care to avoid damaging the product. Keep product dry and in original labeled container. Keep away from moisture.

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 if the ingredient is present and for percent.

<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

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

R-phrases

Aluminum

R11 : Highly flammable.

R15 : Contact with water liberates extremely flammable gases.

S-phrases

Aluminum

S2 : Keep out of the reach of children.

S7/8 : Keep container tightly closed and dry.

S43 : In case of fire, use fire-fighting equipment as listed in Section 5 - Never use water.

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

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