

SAFETY DATA SHEET

Revision date: 06 Aug 2026

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: FeAlCoCrNiTi Alloy Powder (Equiatomic High-Entropy Alloy)

Synonyms: Fe-Al-Co-Cr-Ni-Ti HEA powder; equiatomic FeAlCoCrNiTi alloy powder.

Recommended use: Research, development, additive manufacturing, thermal spray, powder metallurgy, and industrial materials processing. Not for food, drug, or household use.

1.2 Supplier details

Company: Heeger Materials Inc.

Address: 230 Steele St, Denver, CO 80206 United States

Telephone: 925-385-8104

Email: sales@heegermaterials.com

1.3 Emergency telephone number

Emergency telephone: 925-385-8104 (24 hours).

2. HAZARDS IDENTIFICATION

2.1 Classification

Classification is based on the known hazards of constituent metals and applies principally when airborne powder or dust is generated. The bulk alloy is not expected to present the same inhalation hazard.

GHS classification: Skin Sensitization Category 1 (H317); Respiratory Sensitization Category 1 (H334); Carcinogenicity Category 2 by inhalation (H351); Specific Target Organ Toxicity - Repeated Exposure Category 1 by inhalation (H372).

2.2 Label elements

Signal word	Hazard statements	Precautionary statements
DANGER	May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing cancer by inhalation. Causes damage to respiratory organs through prolonged or repeated inhalation.	Avoid breathing dust. Use only with adequate local exhaust ventilation. Wear protective gloves and suitable respiratory protection. Contaminated work clothing must not be allowed out of the workplace. If inhaled and breathing is difficult, remove to fresh air and seek immediate medical attention.

2.3 Other hazards

Fine powder can form combustible dust concentrations in air. Avoid dust clouds, ignition sources, hot surfaces, and static discharge. Powder may irritate eyes, skin, nose, throat, and respiratory tract.

3. COMPOSITION / INFORMATION ON INGREDIENTS

This product is an alloy powder with no assigned CAS number. The composition below is calculated from an equiatomic Fe-Al-Co-Cr-Ni-Ti formulation; values are approximate mass percentages.

Component	CAS No.	Approx. wt.%
Iron (Fe)	7439-89-6	18.60
Aluminum (Al)	7429-90-5	8.98
Cobalt (Co)	7440-48-4	19.62
Chromium (Cr)	7440-47-3	17.31
Nickel (Ni)	7440-02-0	19.54
Titanium (Ti)	7440-32-6	15.95

4. FIRST-AID MEASURES

Inhalation: Move the affected person to fresh air. Keep at rest. If symptoms such as coughing, wheezing, shortness of breath, or sensitization occur, obtain immediate medical attention.

Skin contact: Remove contaminated clothing. Wash skin thoroughly with soap and water. Seek medical attention if irritation, rash, or allergic response develops.

Eye contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

Ingestion: Rinse mouth. Do not induce vomiting. Obtain medical advice if a significant quantity is swallowed or symptoms occur.

Most important symptoms: Mechanical irritation from dust; possible allergic skin reaction; wheezing or asthma-like symptoms in sensitized persons.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Use Class D dry powder suitable for metal fires, dry sand, or other media appropriate for the surrounding fire. Use the agent recommended by local fire authorities for metal powder fires.

Unsuitable extinguishing media: Do not use water, foam, halogenated agents, or carbon dioxide directly on burning metal powder unless specifically confirmed suitable by a qualified fire authority.

Specific hazards: Finely divided powder may form an explosible dust cloud. Combustion may produce metal oxide fumes.

Firefighter protection: Wear full protective equipment and self-contained breathing apparatus. Prevent disturbance of accumulated powder.

6. ACCIDENTAL RELEASE MEASURES

Avoid generating dust. Eliminate ignition sources. Wear the personal protective equipment described in Section 8. Collect material using a HEPA-filtered vacuum or non-sparking tools. Do not dry sweep or use compressed air. Place recovered material in a closed, labeled container for reuse or disposal. Prevent release to drains and waterways.

7. HANDLING AND STORAGE

Handling: Use in a well-ventilated area with local exhaust at points where powder is opened, transferred, machined, or processed. Ground and bond equipment where static may accumulate. Keep away from ignition sources. Avoid contact with skin and eyes and avoid inhalation of dust.

Storage: Store tightly closed in a cool, dry, well-ventilated place. Protect from moisture, strong oxidizers, strong acids, and incompatible materials. Keep containers closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure controls: Maintain airborne metal dust concentrations below the most stringent applicable occupational exposure limit. Use local exhaust ventilation and enclosed transfer methods where practical.

Substance	Reference exposure value	Control guidance
Cobalt metal / dust	0.1 mg/m ³ (OSHA PEL TWA)	Use local exhaust and minimize airborne dust.
Nickel metal / dust	1 mg/m ³ (OSHA PEL TWA)	Use local exhaust and suitable respiratory protection.
Chromium metal / dust	1 mg/m ³ (OSHA PEL TWA)	Avoid dust generation; monitor workplace exposure as required.
Aluminum and iron dust	Follow applicable local limits	Control nuisance and respirable dust.

Respiratory protection: If ventilation does not adequately control exposure, use a NIOSH-approved particulate respirator. Use P100 filtration or a higher level of protection for sustained dust generation; select protection according to the workplace exposure assessment.

Eye / face protection: Safety glasses with side shields; use goggles or a face shield where dust may be generated.

Skin protection: Wear protective gloves and work clothing. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value
Appearance	Gray to metallic gray powder
Odor	Odorless
pH	Not applicable (solid)
Melting range	Not determined for the alloy
Solubility in water	Insoluble or slightly soluble
Flash point	Not applicable; fine powder may present a combustible dust hazard
Particle size	Not specified; hazard classification must be reviewed if particle size or surface treatment changes

10. STABILITY AND REACTIVITY

Reactivity: Stable under normal recommended storage conditions. Fine powder may react more readily than bulk alloy.

Conditions to avoid: Heat, sparks, flames, static discharge, dust clouds, moisture, and incompatible materials.

Incompatible materials: Strong oxidizers, strong acids, halogens, and materials that may promote metal powder reactions.

Hazardous decomposition products: Metal oxide fumes and irritating dusts under fire or high-temperature processing conditions.

11. TOXICOLOGICAL INFORMATION

Exposure is primarily by inhalation of dust, skin contact, eye contact, and incidental ingestion. Mechanical irritation may occur after dust exposure. Cobalt and nickel may cause sensitization of the skin and respiratory tract. Prolonged or repeated inhalation of metal-containing dust may adversely affect the respiratory system. The carcinogenicity classification is based on constituent-metal hazard information and applies principally to respirable dust exposure.

12. ECOLOGICAL INFORMATION

No specific ecotoxicity data are available for this alloy powder. Avoid release to the environment. Metal-containing powder may persist in soil and sediments; collect spills and dispose of waste in accordance with applicable regulations.

13. DISPOSAL CONSIDERATIONS

Dispose of contents and container through an authorized waste contractor in accordance with local, state, federal, and international regulations. Treat as metal-containing industrial waste. Do not discharge to drains or the environment. Recycle clean uncontaminated powder where feasible.

14. TRANSPORT INFORMATION

Based on available information, this material is not regulated as dangerous goods for DOT, IATA, or IMDG transport. The shipper remains responsible for verifying the final transport classification for the specific particle size, packaging, and destination, including any combustible-metal-powder testing requirements.

15. REGULATORY INFORMATION

The constituent elements may be subject to workplace, reporting, and environmental regulations. This SDS does not replace a jurisdiction-specific regulatory review. Users must ensure compliance with all applicable chemical inventory, occupational safety, exposure, waste, and transportation requirements.

16. OTHER INFORMATION

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Prepared for: Equiatomic FeAlCoCrNiTi alloy powder. The approximate mass percentages in Section 3 were calculated from equal atomic proportions. A qualified EHS professional should review this SDS before commercial use, especially if particle size, coating, impurities, or manufacturing process differs from the stated product.

The information in this SDS is believed to be accurate for the specified product but is provided without warranty. The user is responsible for determining suitability and for complying with applicable laws and regulations.