

Kovar SAFETY DATA SHEET

Kovar

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Kovar® Solid - foil, sheet, rod, wire, pellets, target

Supplier: Eagle Alloys Corporation
178 West Park Court
Talbott, TN 37877
Telephone: 423-586-8738
Fax: 423-586-7456
Email: sales@eaglealloys.com

24 HOUR EMERGENCY ASSISTANCE: CHEMTREC 800-424-9300

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Not classified as hazardous

GHS Label Elements: N/A

Hazards Not Otherwise Classified: N/A

Other Hazard Information: Under normal handling and use, exposure to solid forms of this material present few health hazards. Subsequent operations such as grinding, melting or welding may produce dust or fumes. Inhalation of fumes may cause metal fume fever. The symptoms of metal fume fever are generally nonspecific flulike complaints including fever, chills, nausea, fatigue, muscle ache, and joint pain. Dusts may irritate lungs, eyes or abraded skin.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient:	CAS#:	%:	EC#:
Iron	7439-89-6	Bal	231-096-4
Nickel	7440-02-0	29	231-111-4
Cobalt	7440-48-4	17	231-158-0

Common Names and Synonyms: Iron-Nickel-Cobalt Alloy, ASTM F15 Alloy

4 FIRST AID MEASURES

General Measures: No special requirements.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, brush material off skin, wash affected area with soap and water. Seek medical attention if symptoms persist.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

Most Important Symptoms/Effects, Acute and Delayed: May cause irritation. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other relevant information available.

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5 FIREFIGHTING MEASURES

Extinguishing Media: Use suitable extinguishing media for surrounding material and type of fire.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Material: This product does not present fire or explosion hazards as shipped. Small chips, fine turnings and dust from processing may be ignitable. May emit metal oxide fumes under fire conditions.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing when necessary.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition if dusts are present.

Methods and Materials for Containment and Cleaning Up: Avoid dust formation. Sweep or scoop up. Place in a properly labeled container for further handling and disposal.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Avoid creating dust. Avoid breathing dust or fumes. Provide adequate ventilation if dusts are created. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking. See section 8 for information on personal protection equipment.

Conditions for Safe Storage: Store in a cool, dry area. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:	OSHA/PEL:	ACGIH/TLV:
Iron (III) Oxide	10 mg/m ³ (fume)	5 mg/m ³ (respirable)
Nickel	1 mg/m ³	1.5 mg/m ³
Cobalt	0.1 mg/m ³	0.02 mg/m ³

Engineering Controls: Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: Use suitable respirator when dust or fumes are present.

Eye Protection: Safety glasses

Skin Protection: Impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Solid in various forms

Color: Silver-gray metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: ~1450 °C

Boiling Point: No data

Flash Point: N/A

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Evaporation Rate:	N/A
Flammability:	No data
Upper Flammable Limit:	No data
Lower Flammable Limit:	No data
Vapor Pressure:	No data
Vapor Density:	N/A
Relative Density (Specific Gravity):	~8.6 g/cc
Solubility in H₂O:	Insoluble
Partition Coefficient (n-octanol/water):	Not determined
Autoignition Temperature:	No data
Decomposition Temperature:	No data
Viscosity:	N/A

10 STABILITY AND REACTIVITY

Reactivity: No specific test data available.

Chemical Stability: Stable under recommended storage and handling conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Avoid creating or accumulating fines or dusts.

Incompatible Materials: Acids, oxidizers.

Hazardous Decomposition Products: Iron oxides, nickel oxides, cobalt oxides.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes.

Symptoms of Exposure: Fines/dusts may irritate lungs, eyes or abraded skin. Inhalation of metal oxide fumes due to heating beyond the boiling point in an oxidizing atmosphere, such as when smelting or welding, may cause substernal chest pain, cough, dyspnea and flu-like symptoms. The respiratory symptoms generally disappear in the exposed individual within 1-4 days.

Acute and Chronic Effects: No adverse effects are expected from normal handling of this material in its solid form.

Iron: If inhaled, iron is a local irritant to the lung and gastrointestinal tract. Inhalation of large amounts may cause iron pneumoconiosis. Chronic inhalation of finely divided powder may cause chronic iron poisoning and pathological deposition of iron in the body tissue. Ingestion may cause vomiting, diarrhea, pink urine, black stool, and liver damage.

Nickel: The most common harmful health effect of metallic nickel in humans is an allergic skin reaction in those who are sensitive to nickel. Although nickel compounds are known human carcinogens, the evidence suggests that the relatively insoluble metallic nickel is less likely to present a carcinogenic hazard than are the nickel compounds that tend to release proportionately more nickel ion.

Cobalt: Acute exposure to cobalt metal dusts or fumes is characterized by irritation to the eyes, and to a lesser extent, irritation to the skin. Chronic exposure to cobalt metal dust or fumes may cause respiratory and dermatologic signs and symptoms. Chronic exposure to cobalt by inhalation in humans' results in effects on the respiratory system, such as respiratory irritation, wheezing, asthma, decreased lung function, pneumonia, and fibrosis.

Acute Toxicity: No available information

Carcinogenicity:

Nickel: NTP: R - reasonably anticipated to be a human carcinogen **IARC:** 2B - possibly carcinogenic to humans

Cobalt: NTP: Not identified as carcinogenic **IARC:** 2B - Possibly carcinogenic to humans

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

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Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

Shipping Regulations: Not regulated

UN Number: N/A

UN Proper Shipping Name: N/A

Transport Hazard Class: N/A

Packing Group: N/A

Marine Pollutant: No

15 REGULATORY INFORMATION

TSCA: All components are listed.

Regulation (EC) No 1272/2008 (CLP): N/A

WHMIS 2015 Classification: N/A

HMIS Ratings: Health: 0 **Flammability:** 0 **Physical:** 0

NFPA Ratings: Health: 0 **Flammability:** 0 **Instability:** 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

Kovar® is a trademark of CRS Holdings Inc, a subsidiary of Carpenter Technology Corp.

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Prepared by: Eagle Alloys Corporation

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