



I – Identification of the Substance and of the Company

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| Supplier: RMO, Inc. 650 W. Colfax Ave. Denver, CO 80204 303-592-8200 | Trade Name and Synonyms – Elgiloy Description: Straight Wire; Arch Wire; Springs; Wire Forms; Auxiliaries; Sectionals |
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Emergency Information Chemtrec: 800-424-9300
 Chemtrec International: 202-483-7616

Product Grade / Name:
ELGILOY

II – Composition / Information on Ingredients

Alloy:
MATERIAL NOMINAL COMPOSITION (% BY WEIGHT)
 Ni 15.00
 Cr 20.00
 Co 40.00
 Fe Balance
 Mn 2.00
 Mo 7.00

Hazardous Ingredients for Elgiloy:

| Substance | CAS # | ACGIH TLVs | | OSHA PELs | | NIOSH RELs | | Carcinogenicity Category |
|------------------------|-----------|-------------|---------------|--|---------------|---|---------------|--|
| | | TWA | STEL/CEIL (C) | TWA | STEL/CEIL (C) | TWA | STEL/CEIL (C) | |
| Ni | 7440-02-0 | 1.5 I | 0 | 1.0 | 0 | 0.015 | 0 | IARC-2B, MAK-1 NIOSH-Ca NTP-R, TLV-A5 |
| Co – fume & dust | 7440-48-4 | 0.02 | | 0.1* * for metal dust & fume, as Co | | 0.05* * for metal dust & fume, as Co | | IARC-2B MAK-2* TLV-A3 * Cobalt as inspirable dusts/aerosols |
| Mo | 7439-98-7 | 10 I 3 R | 0 | 0 | 0 | 0 | 0 | |
| Cr | 7440-47-3 | 0.5 | 0 | 1.0 | 0 | 0.5 | 0 | IARC-3 TLV-A4 |
| Fe – oxide dust & fume | 1309-37-1 | 5.0 | 0 | 10.0 | 0 | 5.0 | 0 | IARC-3 TLV-A4 |
| Mn – compounds | 7439-96-5 | 0.2 | 0 | 0 | C5 | 1 | 3 | EPA-D |
| Mn - fume | 7439-96-5 | 0.2 | 0 | 0 | C5 | 1 | 3 | EPA-D |

Note: PEL/TWA data based on solid, metallic form, unless otherwise indicated.

III – Hazards Identification

Elgiloy products in their usual solid physical state do not constitute any physical or health hazard. However, subsequent operations such as brazing, burning, cutting, grinding, heat treating, pickling, welding, or processing in any other fashion may produce potentially hazardous dust or fume which can be inhaled, swallowed, or come

in contact with the skin, eyes, or mucous membranes.

Exposure occurs generally through inhalation of fumes and dust created during certain manufacturing operations. Certain elements, however, may be hazardous through direct skin and / or eye contact. Ingestion, while highly unlikely, could also be harmful in the case of certain elements.

Listed below are certain critical effects (TLV Basis) which apply to hazardous ingredients found in alloys supplied. Please refer to Section II for a list of potential hazardous ingredients found in the subject alloy.

Chromium: Irritation; dermatitis

Cobalt: Asthma; lung; CVS

Copper: Irritation; GI; metal fume fever

Iron: Pneumoconiosis

Manganese: CNS (manganism); lung; reproductive

Molybdenum: Irritation

Nickel: Dermatitis; pneumoconiosis; kidney; Cancer (lung); irritation

Silicon: Lung

Titanium: (Dioxide) Lung

Vanadium: (Pentoxide Dust & Fume) Irritation; lung

During welding, precautions should be taken for airborne contaminants and noxious gases that may originate from the welding process or from components of the welding rod. Of special concern are silica or silicates, or both; fluorides; copper; manganese; carbon monoxide and nitrogen oxide.

Chromium, cobalt Chromium Alloys, and Nickel have been identified by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) as potential cancer causing agents.

IV – First Aid Measures

PRIMARY ROUTES OF ENTRY:

Inhalation

Eye Contact

Skin Contact

Ingestion

EMERGENCY FIRST AID:

Remove to fresh air; consult physician.

Flush well with running water to remove particulates and get medical attention.

Brush off excess dust. Wash area well with soap and water. Consult physician.

Highly unlikely. Consult physician.

V – Fire Fighting Measures

Fire & Explosion Hazard: None; Product is a metallic solid in wire, rod, bar, strip, sheet, plate or disk form.

Arc and sparks generated when welding with this product could be a source of ignition for combustible and flammable materials.

VI – Accidental Release Measures

Spill or Leak Procedures: Remove by mechanical means.

VII – Handling and Storage

Use good housekeeping procedures to prevent accumulation of dusts, thus minimizing airborne dust concentrations.

VIII – Exposure Controls / Personal Protection

Ventilation Requirements:

In manufacturing or handling procedures creating dust or fumes in excess of the PEL/TLV levels given in section II, exhaust systems should be utilized to keep potentially harmful dust particles or fumes below PEL/TLV levels stated in Section II.

Personal Protective Equipment:

Personal Protection:

Respiratory:

In manufacturing or handling procedures creating dust or fumes in excess of the PEL.TLV levels given in section II, NIOSH approved respirators should be worn to limit unnecessary inhalation of potentially hazardous dust particles or fumes.

Skin and Eye Protection:

Protective clothing, gloves and glasses should be worn as warranted by the manufacturing operation.

IX – Physical and Chemical Properties

Boiling Point: N/A

Melting Point: (F°) 2400-2800

Vapor Pressure: N/A

Vapor Density: N/A

Percent Volatile by Volume: N/A

Evaporation Rate: N/A

Solubility in Water: Insoluble

Appearance and Odor: Solid Metal, Odorless.

Specific Gravity: 7.5 to 8.5

X – Stability and Reactivity

Stability:

Unstable () Stable (X)

Conditions to Avoid: N/A

Incompatibility:

Material to Avoid: None

Hazardous Decomposition Products:

None

Hazardous Polymerization:

May Occur () Will Not Occur (X)

Conditions to Avoid: N/A

XI – Toxicological Information

Specialty metals, in their various forms, as delivered, are not known to present any health hazards. Welding, grinding, cutting, stamping, abrading, or any other manufacturing method creating a dust, fume or oxide may cause hazardous levels of certain elements, as addressed in section II. In such cases, extra precautions appropriate to the operation and industry safety standards should be taken.

Chromium, cobalt Chromium Alloys, and Nickel have been identified by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) as potential cancer causing agents.

XII – Ecological Information

No ecological effects are known.

XIII – Disposal Considerations

Follow federal, state and local regulations regarding disposal.

Grinding, Cutting and Welding Residue – Follow federal, state and local regulations regarding disposal.

XIV – Transportation Information

Technical Shipping Name: Not regulated

Freight Class Bulk: N/A

Freight Class Package: N/A

Product Label: N/A

Hazard Class or Division: Non-Hazardous

Hazard Class Division Number: Not Hazardous by D.O.T. Regulations

XV – Regulatory Information

These products are manufactured using Good Manufacturing Practices and are regulated as Class I Medical Devices by the U.S. Food and Drug Administration, Class II by the Canada CMDR, and Class IIa by the Medical Device Directive 93/42 EEC for the European Community.

XVI – Other Information

Note: While the information and recommendations set forth on this data sheet are believed to be accurate as received from our suppliers, RMO, Inc. makes no warranty with respect thereto and disclaims all liability from reliance thereon.