EDRO
Specialty Steels, Inc.

MATERIAL SAFETY DATA SHEET

I GENERAL INFORMATION

Title: EDRO MSDS No. 001 Rev. 5 Date: January 25, 2014

Identity: Stainless Steels Synonyms: AISI/SAE Grade 400 Series Stainless Steels, Edro RoyAlloy

Family: Inorganic Compounds

Manufacturer's Name: Edro Specialty Steel, Inc.
Manufacturer's Address: 20500 Carrey Road Walnut, CA 91789
Information Telephone Number: 909-594-5751 Prepared by: Robert J. Friedrich
Emergency Telephone Number: 909-594-5751 Fax Telephone Number: 909-594-2154

II INGREDIENTS

	Ingredient	CAS #	Wt %	General	Exposure Limits OSHA PEL mg/M^3	Exposure Limits ACGIH TLV mg/M^3
	Carbon	7440-44-0	.02 - .40	PEL as Nuisance Dust	15	10
*	Chromium	7440-47-3	11.00 – 18.00	PEL as Chromium Metal	1	.5
				PEL As Chromium (VI)	.1	.05
	Copper	7440-50-8	.01 - 1.20	PEL as Copper Fume	.1	.2
				PEL as Copper Dust & Mist	1	1
	Iron	1309-37-1	Balance	PEL as Iron Oxide Fume	10	5
*	Manganese	7439-96-5	.50 – 2.00	PEL as Manganese Dust	5	5
				PEL as Manganese Fume	5	1
	Molybdenum	7439-98-7	.05 – 1.00	PEL Insoluble Compounds	15	10
*	Nickel	7440-02-0	.05 – 2.00	PEL as Nickel Metal	1	1
	Silicon	7440-21-3	.10 – 2.00	PEL as Nuisance Dust	15	10
	Sulfur	7704-34-9	.001 - .40	PEL as Nuisance Dust	15	10
	Vanadium	7440-62-2	.02 - .20	PEL as V_2O_5 Dust	.5	.05
				PEL as V_2O_5 Fume	.1	.05

***** Indicates that this ingredient is classified as a toxic chemical subject to the reporting requirements of Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

The chemical ranges presented above are given for industrial hygiene and environmental uses and are not to be construed as a material specification for product application. All information presented has been taken from data believed to be reliable at the time of preparation. Additional elements may be present in these products in trace amounts including aluminum, arsenic, boron, calcium, cadmium, cobalt, lead, phosphorous, tin, titanium and zirconium. Steel products as shipped do not present an exposure hazard but can present a hazard during subsequent manufacturing operations.

III PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling Point: N/A
Melting Point: 2400 – 2800°F (1315 – 1538°C)
Vapor Pressure (mm Hg): N/A
Specific Gravity (H_2O = 1): Approximately 8
Vapor Density (Air = 1): N/A
Evaporation Rate (H_20 = 1): N/A
Solubility in Water: Insoluble
Appearance and Odor: Solid Gray, odorless metal

IV PHYSICAL AND CHEMICAL HAZARDS

Flash Point: Not Flammable
LEL: N/A
Extinguishing Media: N/A
UEL: N/A
Special Fire Fighting procedures: N/A
Unusual Fire and Explosion Hazards: N/A

V REACTIVITY DATA

Stability: Stable
Conditions to Avoid: N/A
Incompatibility: N/A
Polymerization: Will not occur
Hazardous decomposition or byproducts: None

VI HEALTH HAZARD DATA

Typical Routes of Entry: Inhalation: Yes Skin: No Ingestion: No Eye Contact: No

Chromium and/or Nickel: Certain forms of chromium and nickel have been associated with cancer of the lungs and nasal passages. Elemental, divalent and trivalent chromium compounds, i.e. as in steel, have not been found to cause cancer in humans. Nickel and chromium have been found to cause adverse skin and respiratory reactions including dermatitis, bronchitis, ulceration and perforation of the nasal septum, coughing, wheezing and dyspnea. Skin contact generally under high temperature and humidity has been associated with a dermatitis known as “Nickel Itch”

Copper: Inhalation may cause metal fume fever, a flu like illness. Sins and symptoms may include fever, chills, muscle aches, nausea, sweet metallic taste in mouth and dry throat. Exposure has been associated with discoloration of the skin and hair. Chronic exposure may damage liver, kidney and spleen. Copper oxide is an irritant to eyes and upper respiratory tract.

Iron Oxide: Prolonged or repeated exposure to high concentrations may cause lung changes considered to be a benign pneumoconiosis (siderosis). Inhalation of iron oxide may cause irritation of eyes, nose and throat and metal fume fever.

Manganese: Exposure may cause irritation of eyes, nose and throat, metallic taste in mouth and metal fume fever. Advanced exposure symptoms may include weakness, sleepiness, nervousness, lack of coordination, uncontrollable laughter, mental confusion, speech disturbances and aggressiveness. Manganese may cause bronchitis, pneumonitis and central nervous system disturbance.

Molybdenum: Slight irritation of eyes, nose and throat. Animal studies suggest the possibility of digestive disturbances such as: colic, diarrhea, weight loss and development of pneumoconiosis, anemia and gout.

Vanadium: Irritation of respiratory tract and conjunctivae. Excessive exposure may result in skin pallor, greenish discoloration of the tongue, eczematous skin lesions, cough, bronchitis and chest pains. Long term exposure may cause pulmonary edema, pneumonia, chronic bronchitis, anemia, albuminuria and nervous complaints.

Carcinogenic References: Certain elements in steel products such as arsenic, chromium, nickel and cobalt-chromium alloys have been identified by the International Agency for Research on Cancer (IARC) and/or the National Toxicology Program (NTP) as potential cancer causing agents.

VII PRECAUTIONS FOR SAFE HANDLING

Product is a solid material as shipped. No potential for spillage or leaking exists.

VIII CONTROL MEASURES

Ventilation: If your operation generates particulates when processing this material, local and general ventilation may be necessary to control employee exposures to within applicable limits.

Respiratory protection: If it is anticipated that the exposure limits indicated will be exceeded, NIOSH approved respirators against dust and/or fumes should be worn in accordance with 29 CFR 1910.134

Protective equipment: Appropriate protective equipment should be worn when burning or welding this material. Gloves should be considered when handling material to prevent cuts and skin irritations. Approved eye protection is recommended for operations involving burning, grinding, brazing, welding or machining.

IX GENERAL

The information in the MSDS was obtained from sources we believe are reliable, however the information is provided without any representation or warranty, express or implied regarding the accuracy or correctness.

We do not consider this material in the form it is sold to constitute a physical hazard or a health hazard. Subsequent operations such as abrading, melting, welding, cutting or processing in any other fashion that causes a release of dust or fumes may cause some of the ingredients to change to a form which could affect exposed workers.

X Emergency First Aid:

The conditions or methods of handling, storage, use and disposal of this material are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way with the handling, storage, use or disposal of this material. The following generally accepted procedures should be considered in cases of suspected health affecting exposures:

Inhalation: Move victim away from source into fresh air and seek medial assistance. If breathing has ceased, CPR should be attempted by qualified personnel. Affected person should be kept at rest and warm as possible.

Eyes: Flush with copious amounts of clear water for several minutes. Seek medical attention.

Skin: Wash any dusts and particles off skin with ordinary soap and water. Remove any contaminated clothing or safety equipment and clean thoroughly before reuse. If a rash or skin irritation develops, seek medical attention.

Ingestion: Seek medical attention immediately.

Rev.5 Notes: No changes from Rev. 4 – periodic review and reissue only.