



Jade-Sterling Steel

SAFETY DATA SHEET

PRODUCT: Carbon and Alloy Steel
Bars, Shapes, Rod, and Wire

ISSUE DATE: April 13th, 2015

SECTION 1 IDENTIFICATION

Jade-Sterling Steel (330) 425-3141
East Aurora Road Twinsburg, OH 44087

SECTION 2 Hazards Identification

STEEL PRODUCTS AS SOLD BY JADE-STERLING STEEL (JSS) ARE NOT HAZARDOUS PER OSHA GHS 29 CFR 1910, 1915, 1926. However, individual customer processes, (such as welding, sawing, brazing, grinding, abrasive blasting, and machining) may result in the formation of fumes, dust (combustible or otherwise), and/or particulate that may present the following hazards:

OSHA Hazards: Carcinogen

Skin Sensitizer

Target Organ Effect – Lungs

GHS Classification: Carcinogenicity (Category 2)

Skin Sensitization (Category 1)

Specific Target Organ Toxicity-Repeated Exposure (Category 1)



Pictogram(s):

Signal Word: Danger

Hazard Statement(s)

H317: Dust/fumes may cause an allergic skin reaction.

H351: Dust/fumes suspected of causing cancer via inhalation.

H372: Inhalation of dust/fumes causes damage to respiratory tract through prolonged or repeated exposure

Precautionary Statement(s)

P202: Do not handle until all safety precautions have been read and understood.

P261: Avoid breathing dust/fumes.

P281: Use personal protective equipment as required.

P308+P313: If exposed or concerned: Get medical advice/attention.

Potential Health Effects

Eye Contact

Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

Skin Contact

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals.

Inhalation

Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in illness.

Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product.

Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

Potential Fire and Explosion Hazards

Steel products under normal conditions do not pose fire or explosion hazards.

Chronic or Special Toxic Effects

The following components are listed by NTP, OSHA, or IARC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic, beryllium. See Section 11, for additional, specific information on effects noted above.

Target Organs

Continued exposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

Medical Conditions Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

SECTION 3 **Composition/Constituents**

Exposure Limits

<u>Material</u>		<u>CAS No.</u>	<u>Weight%</u>	<u>OSHA PEL(Mg/M³)</u>	<u>ACGIH TLV(Mg/M³)</u>
Base Metal					
Iron	(Fe)	7439-89-6	Balance	10 (Iron Oxide Fume)	5 (Iron Oxide Fume)
Alloying Elements					
Carbon	(C)	7440-44-0	1.00 max	None Established	None Established
Manganese	(Mn)	7439-96-5	0.25/2.00	1.0 (Fume)	1.0 (Fume)
Phosphorus	(P)	7723-14-0	0.15 max	0.1 (Phosphorus)	0 for inorganic phosphates
Sulfur	(S)	7446-09-5	0.40 max	13.0 (Sulfur Dioxide)	5.0 (Sulfur Dioxide)
Silicon	(Si)	7440-21-3	2.0 max	10 (Dust)	5 (dust)
Copper	(Cu)	7440-50-8	0.70 max	0.1 (Fume), 1.0 (Dust)	0.2 (Fume), 1.0 (Dust)
Nickel	(Ni)	7440-02-0	4.00 max	1 (Metal and Compounds)	1.5 (Metal)
Chromium	(Cr)	7440-47-3	10.0 max	1 (Metal)	0.5 (Metal), 0.05 (Compounds)
Molybdenum	(Mo)	7439-98-7	1.50 max	15 Insoluble Compounds	10 Insoluble Compounds
Aluminum	(Al)	7429-90-5	0.10 max	15 (Dust), 5 (Respirable)	5 (Fume), 10 (Dust)
Lead	(Pb)	7439-92-1	0.4 max	0.05 (Dust / Fumes)	0.05 (Dust / Fume)
Vanadium	(V)	7440-66-6	0.5 max	0.5 (Oxide Dust)	0.05 (Oxide Dust / Fume)
Titanium	(Ti)	7440-32-6	0.5 max	0.1 (Oxide Fume)	

Note: The above listing is a summary of elements used in alloying steel products. In addition to those listed other elements called trace or residual elements may occur. Various grades of steel will contain different combinations of these elements and/or trace elements.

SECTION 4 **FIRST AID MEASURES**

Steel in solid state presents no issue.

In the case of overexposure to dust:

Eye Contact – Flush with plenty of water. Get medical attention if necessary

Skin Contact – Wash with soap and water. Get medical attention if needed. Thermal burn may occur.

Inhalation – Remove to fresh air. If symptoms arise, seek medical attention.

Ingestion – Not considered an ingestion hazard.

SECTION 5 **FIRE-FIGHTING MEASURES**

Steel in a solid state presents no fire or explosion hazard. Do not use water on molten metal.

SECTION 6 **ACCIDENTAL RELEASE MEASURES**

Steel presents no reactivity problems under normal conditions. In contact with acid it will liberate hydrogen, and at melting point temperature may liberate oxides of the iron and alloying elements.

SECTION 7 **HANDLING AND STORAGE**

Steel is stable under normal conditions. Store away from strong oxidizers. If dust forms, dust may form explosive mixtures with air. Spills are not applicable to steel in solid form.

SECTION 8 **EXPOSURE CONTROL/PERSONAL PROTECTION**

Respiratory Protection - NIOSH/MSHA approved dust and fume protectors should be used to

avoid excessive inhalation of particulates.

Skin Protection - Use appropriate protective clothing such as gloves and aprons when handling, burning, or welding.

Eye Protection - Safety glasses and/or face shields should always be worn when machining, grinding, sawing, welding and burning.

Ventilation - Keep area well ventilated when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust and fume exposure. Areas with operations having a high potential for generating heavy concentration of particulates should be studied for consideration of special exhaust equipment.

SECTION 9

PHYSICAL CHARACTERISTICS

Melting Point: 2750°F

Boiling Point: N/A

Vapor Pressure: N/A **Solubility in Water:** Insoluble

Appearance - Gray Metallic Luster

Odor – Odorless

SECTION 10

STABILITY AND REACTIVITY

Steel is stable at normal conditions. Avoid raising steel to melting point and above to prevent fumes. Store away from strong oxidizers. If dust forms, dust may form explosive mixtures with air.

SECTION 11

TOXICOLOGICAL INFORMATION

The primary component of this product is iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver. Iron and steel founding, but not iron or iron oxide, has been listed as carcinogenic (Group 1) by IARC.

When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with the chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above), and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects. Evidence is stronger where welding materials contain known reproductive toxins, e.g., lead which may be present in the coating material of this product.

Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.

This product may contain small amounts of manganese. Prolonged exposure to manganese dusts or fumes is associated with "manganism", a Parkinson-like syndrome characterized by a variety of neurological symptoms including muscle spasms, gait disturbances, tremors, and psychoses.

This product may contain small amounts of cadmium. Primary target organs for cadmium overexposure are the lung and the kidney. Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called "Itai-Itai" in postmenopausal women, and has caused developmental effects and/or reproductive effects in male and female animals. Cadmium is a listed carcinogen by NTP, OSHA, and IARC (Group 1).

This product may contain small amounts of chromium. Prolonged and repeated overexposure to chromium dusts or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Chromium is skin sensitizer. Cancer is generally attributed to the hexavalent (+6) form of chromium which is listed as a carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of nickel. Prolonged and repeated contact with nickel may cause sensitization dermatitis. Inhalation of nickel compounds has caused lung damage as well as sinus, nasal and lung cancer in laboratory animals. Nickel is a listed carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of vanadium. Adverse effects from dermal, inhalation or parenteral exposure to various vanadium compounds have been reported. The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation, and systemic effects. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, and tightness of the chest have been reported following overexposure. Allergic reactions resulting from skin and inhalation exposures

have also been reported. A statistical association between vanadium air levels and lung cancer has been suggested, but vanadium currently is not regarded as a human carcinogen.

This product may contain small amounts of lead. Lead can accumulate in the body. Consequently, exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin.

The product may contain small amounts of copper. Copper dust and fumes can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation of copper fumes include a metallic or sweet taste, and discoloration of skin, teeth or hair. Copper also may cause an allergic skin reaction. Overexposure to copper can affect the liver.

SECTION 12

ECOLOGICAL INFORMATION

No info available.

SECTION 13

DISPOSAL CONSIDERATIONS

Recycle steel when able. Please follow all local, state, federal laws when disposing.

SECTION 14

TRANSPORT INFORMATION

DOT Proper Shipping Name - Not regulated

DOT Hazard Classification - Not regulated

UN/NA Number - Not applicable

DOT Packing Group - Not applicable

Labeling Requirements - Not applicable

Placards - Not applicable

DOT Hazardous Substance - Not applicable

DOT Marine Pollutant - Not applicable

SECTION 15

REGULATORY INFORMATION

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and require protection to comply with applicable Federal, state and local laws and regulations.

California Proposition 65: This product contains chemicals (antimony [oxide], arsenic, beryllium, chromium [hexavalent], cobalt, cadmium, lead, nickel) known to the State of California to cause cancer and chemicals (cadmium, lead) known to the State of California to cause birth defects or other reproductive harm.

Massachusetts Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Hydrochloric acid, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc

Pennsylvania Hazardous Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Hydrochloric acid, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc

New Jersey Hazardous Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Hydrochloric acid, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc

Toxic Substances Control Act (TSCA)

Components of this product are listed on the TSCA Inventory.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Steel is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches (RQ marked with a "**").

Chemical Name	Reportable Quantity (in lb)
Antimony	5000*
Arsenic	1*
Beryllium	10*
Cadmium	10*
Chromium	5000*
Copper	5000*
Lead	10*
Nickel	100*
Phosphorus	1
Selenium	100*
Zinc	1000*

SECTION 16

OTHER INFORMATION

The information in this SDS is taken from sources and data believed to be responsible. Jade-Sterling Steel makes no warranty, express or implied, regarding accuracy or absolute correctness of any of the above. Further, we do not assume

responsibility and disclaim liability for loss, damage or expense arising out of or connected with the handling, storage, or use of the steel products listed.