

# MATERIAL SAFETY DATA SHEET

November 2002

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Trade Name: **Stainless Steel**

Synonyms: Nickel-Iron Alloys

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## HAZARDOUS INGREDIENTS

Ingredient CAS # Form OSHA/PEL (mg/m<sup>3</sup>) ACGIH/TLV (mg/m<sup>3</sup>)

Aluminum 7429-90-5 Dust, fumes -- 10.00, 5.00

Carbon 1333-86-4 As carbon black 3.50 3.50

Chromium 7440-47-3 1.00 .50

Cobalt 7440-48-4 .10 .10

Copper 7440-50-8 Dust, fumes 1.00, .10 1.00, .20

Iron 1309-37-1 PEL-iron, oxide fumes, TLV-as Fe 10.00 5.00

Manganese 7439-96-5 Dust, fumes 5.00, -- 5.00, 1.00

Molybdenum 7439-98-7 Insoluble compound 15.00 10.00

Nickel 7440-02-0 1.00 1.00

Niobium 7440-03-1 5.00 5.00

Phosphor 7723-14-0 Yellow .10 .10

Silicon 7440-21-3 Respirable dust -- 5.00

Sulfur 7446-09-5 As sulfur dioxide -- 5.00

Tin 7440-31-5 2.00 2.00

Titanium 13463-67-7 As titanium dioxide 15.00 5.00

Tungsten 7440-33-7 Insoluble compound -- 5.00

Vanadium 1314-62-1 Dust, fumes (as vanadium pentoxide) .50, .10 .05, .05

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## PHYSICAL DATA

Boiling Point: High Vapor Density: Nil

Specific Gravity: 7.5 - 8.5 Vapor Pressure: Nil

Melting Point: 2400 - 2800 °F Solubility: Insoluble

Appearance and Odor: Solid, odorless metal

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## FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/A Autoignition Temperature: N/A

Flammable Limits: Lower: N/A Upper: N/A

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

Special Firefighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

Fire and Explosion Hazards: None

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## HEALTH HAZARD INFORMATION

Acute Effects: Welding and high temperature cutting may produce dust and fumes. Short-term exposure may cause nausea, fever, irritation of eyes, nose, throat, skin; metallic taste.

Chronic Effects: Long-term exposure to welding fumes, gases or dust may result in skin sensitization, neurological damage and respiratory disease.

### Effects of Exposure:

Inhalation: Inhalation of excessive fume or dust concentrations may result in respiratory tract irritation.

Eyes: Mechanical irritation may result from an accumulation of dust particles in the eye.

Skin: Some skin irritation may result from exposure to dust.

Ingestion: Some constituents may be harmful if swallowed.

Symptoms of Exposure: Metallic taste, fever, loss of consciousness due to welding gases.

Carcinogenicity: Chromium, nickel and chromium-cobalt alloys have been identified by the international agency for research on cancer as potential cancer-causing agents.

#### EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Move person to fresh air until recovered.

INGESTION: While ingestion of large enough quantities to cause health effects is unlikely, consult a physician if it occurs.

SKIN: Wash with water and a mild detergent.

EYES: Flush thoroughly with water.

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#### REACTIVITY DATA

Stability: Stable

Incompatibility (Material to Avoid): Reacts with strong acids to produce hydrogen gas.

Hazardous Decomposition Products: Metallic dust or fumes may be produced during welding, burning, grinding and possibly machining.

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#### SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: No potential for spill or leak as delivered. Gather dust and residue from machining.

Waste Disposal: In accordance with state, federal and local regulations.

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#### SPECIAL PROTECTION INFORMATION

Ventilation: Use adequate ventilation to keep fume or dust concentration below the occupational exposure limits shown in section II.

Respiratory Protection: If your process causes a release of dust or fume in excess of PEL, NIOSH approved respirators should be worn in accordance with 29CFR 1910.134.

Protective Equipment: If your process causes a release of dust or fume, approved safety glasses or goggles should be worn. Gloves are recommended.

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

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