

MATERIAL SAFETY DATA SHEET

Elgen Manufacturing Company INC.

300 Murray Hill Road. East Rutherford, NJ 07073

(800)503-9805

ISSUE DATE: 6/10/2009

EMERGENCY PHONE NUMBER: INFOTRAC: (800) 535-5053

I. Product

PRODUCT NAME: Carbon Steel Products

CLASS: Steel

II. Physical Data

APPEARANCE: Metallic Gray, Odorless

SPECIFIC GRAVITY: 7.85

MELTING POINT: 2750° F

III. Hazardous Ingredients

<u>MATERIAL:</u>	<u>% WEIGHT</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Iron	>97.0	10 mg/M3 (Iron oxide fume)	5 mg/M3 (Iron oxide dust & fume)
Aluminum	0.01 . 0.5	15 mg/M3 . Total dust 5 mg/M3 . Respirable fraction	10 mg/M3 . Metal Dust 5 mg/M3 . Welding fume
Boron	.0003 (Max)	15 mg/M3 . Total dust (as Boron oxide)	10 mg/M3 . Boron oxide
Calcium	0.10 (Max)	5 mg/M3 Calcium oxide	2 mg/M3 . Calcium oxide
Carbon	0.60 (Max)	15 mg/M3 . Total dust (PNOR) 5mg/M3 . Respirable fraction (PNOR)	10 mg/M3 . Inhalable fraction4 (PNOR) 3 mg/M3 . Respirable fraction6 (PNOS)
Chromium*	. 0.5 (Max)	1.0 mg/M3 (Chromium metal)	0.5 mg/M3 - Chromium metal & Cr III compounds
Columbium	. 0.15 (Max)	15 mg/M3 . Total dust (PNOR) 5 mg/M3 . Respirable fraction (PNOR)	10 mg/M3 - Inhalable fraction (PNOS) 3 mg/M3 . Respirable fraction (PNOS)
Copper	0.50 (Max)	0.1 mg/M3 . Fume (as Cu) 1 mg/M3 . Dusts & mists (as Cu)	0.1 mg/M3 . Fume 1 mg/M3 . Dusts & mists (as Cu)
Manganese	2.0 (Max)	5 mg/M3 (C) - Fume & Mn compounds	0.2 mg/M3
Molybdenum	. 0.25 (Max)	15 mg/M3 . Total dust (as Mo)	10 mg/M3 . Metal and insoluble compounds (Inhalable fraction) 3 mg/M3 . Metal & insoluble fraction (Respirable fraction)
Nickel*	. 0.3 (Max)	1.0 mg/M3 . Metal & insoluble compounds (as Ni)	1.5 mg/M3 . Elemental nickel (as Ni) 0.2 mg/M3 . Insoluble compounds (NOS)
Phosphorus	0.15 (Max)	0.1 mg/M3	0.1 mg/M3
Silicon	. 1.00 (Max)	15 mg/M3 -Total dust 5 mg/M3 . Respirable fraction	10 mg/M3
Sulfur	. 0.04 (Max)	15 mg/M3 Total dust (PNOR) 5 mg/M3 . Respirable fraction (PNOR)	10 mg/M3 . Inhalable fraction (PNOS) 3 mg/M3 . Respirable fraction (PNOS)
Tin	. 0.01 (Max)	2 mg/M3 . Tin metal (as Sn)	2 mg/M3 . Inorganic compounds (except oxides) (as Sn)
Titanium	. 0.15 (Max)	15 mg/M3 . total dust (PNOR) 5 mg/M3 . Respirable fraction (PNOR)	10 mg/M3 (Titanium dioxide)
Vanadium	. 0.15 (Max)	0.5 mg/M3 (C) . Respirable fractions as V2O5 0.1 mg/M3 (C) - Fume (as V2O5)	0.05 mg/M3 . Dust or fume (as V2O5)

Notes:

All commercial steel products contain small amounts of various elements in addition to those specified. These small quantities frequently referred to as "trace" or "residual" elements, generally originate in the raw materials used. Individual trace elements vary in concentration by weight, and may include antimony, arsenic, cadmium, cobalt, lead, and zirconium.

OSHA Permissible Exposure Limits (PELs) are 8-hours TWA (time-weighted average) concentrations unless otherwise noted. A ("C") designation denotes a ceiling limit, which should not be exceeded during any part of the working exposure unless otherwise noted.

Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted.

PNOR (Particulates Not Otherwise Regulated). All inert or nuisance dusts, whether mineral, inorganic or organic, not listed specifically by substance name are covered by PNOR limit which is the same as the inter or nuisance dust limit of 15 mg/M3 for total dust and 5 mg/M3 for the respirable fraction.

Inhalable fraction. The concentration of inhalable particulate for the application of this TLV is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH TLVs and BELs Appendix D, paragraph A.

PNOS (Particulates Not Otherwise Specified). Particulates identified under the PNOS heading are "nuisance dusts" containing no asbestos and <1% crystalline silica. A TWA-TLV of 10 mg/M3 for inhalable particulate and 3 mg/M3 for respirable particulate has been recommended.

Respirable fraction. The concentration of respirable dust for the application of this limit is to be determined from the reaction passing a size-selector with the characteristics defined in the ACGIH TLVs and BELs Appendix D, paragraph C.

*Suspect Carcinogen by NTP and IARC

IV. Health Hazard Data

ROUTE OF EXPOSURE: Inhalation of dusts or fumes.

EFFECTS OF OVEREXPOSURE:

Acute Effect: Excessive exposure to high concentrations of dust may cause irritation of the eyes skin and mucous membranes of the upper respiratory tract. Excessive inhalation of metal fumes can produce an acute reaction known as "metal fume fever". Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms) which come on a few hours after large exposures and usually last 12 to 48 hours.

Chronic Effects: Only after six to ten years of exposure to iron dust or fume does one present any signs of pneumoconiosis (i.e. siderosis). Physical examinations of those exposed to iron dust have not indicated any disability.

Excessive and repeated inhalation of chromium fume or dust may cause severe irritation, ulceration or cancer in the respiratory system. It is generally believed that the hexavalent forms of chromium (Cr + 6) are responsible for these effects. It is uncertain whether metallic chromium in dust form can cause the same effects noted above. Excessive and prolonged inhalation of manganese (generally over two years exposure) can cause damage to the central nervous system. The pathology resembles Parkinson Disease. Also, workers routinely exposed to high concentrations of manganese display an unusually high incidence of respiratory disease.

Molybdenum has caused eye, skin, nose, and throat irritation in animals. Excessive inhalation of nickel fumes have been associated with respiratory cancer. Nickel is a potential sensitizer and may cause allergic reactions.

Boron oxide dusts and fumes may cause upper respiratory tract and eye irritation, dryness of the mouth, nose or throat, and sore throat and productive cough.

Repeated and prolonged inhalation of calcium may cause inflammation of the respiratory passages, ulcers of the mucous membranes, and possible perforation of the nasal septum. Repeated or prolonged skin contact may cause dermatitis.

Chronic inhalation of high concentrations of carbon may cause pulmonary disorders.

Chronic inhalation of copper dust has caused, in animals, hemolysis of the red blood cells, deposition of hemofuscin in the liver and pancreas, injury to lung cells and gastrointestinal symptoms.

Exposure to dust and fume of tin (oxide) is recognized to result in a benign pneumoconiosis called stannosis.

Vanadium dusts cause a persistent cough, which can develop after five hours of exposure and may last up to ten days.

Pulmonary irritation also results from vanadium, but there are no deviations in pulmonary function or other laboratory tests.

V. Fire and Explosion Hazard Data

FLASH POINT: N/A

EXTINGUISHING MEDIA: Not applicable for solid product. Use extinguishers appropriate for surrounding material.

SPECIAL PROCEDURES: Firemen should wear equipment to protect against noxious fumes.

VI. Spill or Leak Procedures

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods which avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the cleanup, use an appropriate NIOSH- approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations.

VII. Special Protection

VENTILATION: Local exhaust ventilation should be provided to keep worker exposures within allowable limits.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved organic vapor respirators when vapor concentrations exceed the TLV.

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury.

PROTECTIVE GLOVES: As needed.

VIII. Emergency and First Aid Procedures

INHALATION: If acute overexposure to dusts or fumes occurs, remove victim from the adverse environment and seek medical attention.

SKIN CONTACT: Remove contaminated clothing. Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush immediately with running water for fifteen minutes. If irritation persists, seek medical attention.

INGESTION: N/A

IX. Carcinogenic Assessment

IARC, NTP and OSHA do not list steel products as carcinogens. The International Agency for Research on Cancer (IARC) identifies nickel, certain nickel compounds and welding fumes as Group 2B carcinogens that are possibly carcinogenic to humans. IARC lists chromium metal and trivalent chromium compounds as Group 3 carcinogens, not classifiable as to their human carcinogenicity. Hexavalent chromium compounds are listed by IARC as Group 1 carcinogens that are carcinogenic to humans.

X. Special Precautions

HANDLING AND STORAGE: Operations with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Practice good housekeeping Avoid breathing metal fumes and/or dust.

XI. Reactivity Data

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Poor ventilation. Storage with strong acids or calcium hypochlorite.

INCOMPATIBILITY: Strong acids (produce hydrogen gas). Iron oxide dusts in contact with calcium hypochlorite evolve oxygen and may cause an explosion.

HAZARDOUS DECOMPOSITION PRODUCT: Thermal oxidative decomposition of steel products can produce fumes containing oxides of iron and manganese as well as other elements. If present, the resin on the product line may yield noxious gases such as oxides of carbon upon thermal oxidative decomposition.

HAZARDOUS POLYMERIZATION: Will not occur.

This information is taken from sources or based upon data believed to be reliable; however, Elgen Manufacturing Company, INC makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.

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ISSUE DATE: 6/10/2009

EMERGENCY PHONE NUMBER: INFOTRAC: (800) 535-5053

I. Product

PRODUCT NAME: ELGEN Galvanized Steel Product

CLASS: Steel

II. Physical Data

APPEARANCE: Metallic Color

BOILING POINT: N/A

SPECIFIC GRAVITY: 7.5-8.5 g/cm³

SOLUBILITY IN WATER: Not Soluble

SOFTENING POINT: 2400 F

MELTING POINT: 2750°F

III. Hazardous Ingredients

<u>MATERIAL:</u>	<u>CAS</u>	<u>% WEIGHT</u>	<u>OSHA PEL (mg/m3)</u>	<u>ACGIH TLV (mg/m3)</u>
Iron	7439-89-6	94.00 – 99.66	10 (oxide fume)	5 (oxide fume)
Zinc Arsenic	7440-66-6	1.00-4.50.	15 (oxide dust)	15 (oxide dust)
Aluminum	7429-90-5	00-.4	15 (dust)	10 (dust)
Antimony	7440-36-0	<.9	0.5	0.5
Arsenic	7440-38-2	<.09	0.01	0.01
Beryllium	7440-41-7	<.09	0.002	0.002
Boron	7440-42-8	<.9	15	10
Cadmium	7440-43-9	<.09	0.005	0.01
Calcium	1305-78-8	<.9	5	2
Carbon	7440-44-0	.04-1.0	15	10
Chromium*	7440-47-3	0.01-1.5	0.5	0.06
Cobalt	7440-48-4	<.09	0.1	0.02
Manganese	7439-96-5	0.05-2.0	5 (dust) 5 (fume)	5 (dust) 1 (fume)
Phosphorous	8049-19-2	.001-.020	15	10
Molybdenum	7439-98-7	0.00-.010	15	10
Nickel	7440-02-0	0.01-.30	1	1
Silicon	7440-21-3	.015-.220	15	10
Sulfur	7704-34-9	.001-.020	15	10

This product contains the following ingredient at levels subject to reporting requirements of:

SARA 313 (40CFR372): Manganese, Chromium Nickel

OSHA HAZARADOUS COMMUNICATIONS STANDARD, (29CFR1910.1200): Manganese, Chromium, Nickel, Silicon, Aluminum metallic powder

CALIFORNIA PROPOSITION 65: This product contains the following trace amounts of chemicals known to the state of California to be a cancer hazard: Nickel

IV. Health Hazard Data

ROUTE OF EXPOSURE: Inhalation of dusts or fumes.

EFFECTS OF OVEREXPOSURE:

Acute Effect: Excessive inhalation of metal fumes can produce an acute reaction known as “metal fume fever”. Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms) which come on a few hours after large exposures.

Chronic Effects: Only after six to ten years of exposure to iron dust or fume does one present any signs of pneumoconiosis (i.e. siderosis). Physical examinations of those exposed to iron dust have not indicated any disability. Excessive and repeated inhalation of chromium fume or dust may cause severe irritation, ulceration or cancer in the respiratory system. It is generally believed that the hexavalent form of chromium (Cr+6) are responsible for these effects.

It is uncertain whether metallic chromium in dust form can cause the same effects noted above. Excessive and prolonged inhalation of manganese (generally over two years exposure) can cause damage to the central nervous system. The pathology resembles Parkinson’s Disease. Also, workers routinely exposed to high concentrations of manganese display an unusually high incidence of respiratory disease. Molybdenum has caused toxicity (anemia and poor growth) in farm animals, but there are no data documenting toxicity to humans due to industrial exposure.

Excessive inhalation of nickel fumes has been associated with respiratory cancer. Nickel is a potential sensitizer and may cause allergic reactions.

Chronic exposure to tungsten dust has caused respiratory disorders characterized by cough, dyspnea and wheezing. There is no correlation between the onset of symptoms, the length of exposure and the development of interstitial fibrosis.

Dermatitis, primarily on the side of the neck, flexor parts of the forearm and the back of the hand were also detected.

Vanadium dusts cause a persistent cough which can develop after five hours of exposure and may last up to ten days

Pulmonary irritation also results from vanadium, but there are no deviations in pulmonary function or other laboratory tests.

Zinc dust is a skin and respiratory tract irritant. It is relatively nontoxic. However, if oxidation occurs prior to inhalation, one must deal with toxicities associated with zinc oxide such as metal fume fever, gastrointestinal disorders and hepatic dysfunction.

V. Fire and Explosion Hazard Data

FLAMMABILITY CLASS:

FLASH POINT: N/A

EXTINGUISHING MEDIA: As for the surrounding fire, use dry powder for metal fires.

UNUSUAL FIRE HAZARD: Contact of molten product with water can cause an explosion hazard.

FIRE FIGHTING PROCEDURES: Wear full protective clothing including helmet, self-contained positive pressure-demand breathing apparatus, protective clothing, and a face mask.

SPECIAL PROCEDURES: Firefighters should wear equipment to protect against noxious fumes.

PRODUCT OF COMBUSTION: Material will begin softening at approximately 2

400 F, will proceed to a liquid and form irritating and toxic gaseous metallic oxides at extremely high temperatures

VI. Spill or Leak Procedures

LARGE/SMALL SPILL: Avoid creating dusts when cleaning spill. Small pieces may be collected using a broom and shovel.

Particulates and dust may be collected by using a vacuum with a HEPA filter. Place collected material in a closed container.

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods which avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the clean up, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations.

VII. Special Protection

VENTILATION: Local exhaust ventilation should be provided to keep workers exposures within allowable limits. Whenever dusts, particulates, or fumes are generated, use appropriate local exhaust ventilation to keep exposures below the regulated limits.

RESPIRATORY PROTECTION: Use NIOSH/NSHA approved organic vapor respirators when vapor concentrations exceed the TLV.

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury. Wear safety glasses with side shields.

HAND PROTECTION: Wear leather or other appropriate work gloves, if necessary for type of operation.

OTHER: Protective clothing coveralls.

VIII. Emergency and First Aid Procedures

INHALATION: If acute overexposure to dust or fumes occurs, remove victim from the adverse environment and seek medical attention.

SKIN CONTACT: Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush immediately with running water for fifteen minutes. If irritation persists, seek medical attention.

INGESTION: N/A

IX. Carcinogenic Assessment

Nickel and Chromium have been identified as suspect carcinogens by NTP and IARC

X. Special Precautions

HANDLING AND STORAGE: Use good housekeeping practices to avoid excessive dust accumulation. As supplied, this product does not present a health hazard. Processing of the product for final uses can include formation of dusts, particulates, or fumes, some of which may present health hazards.

XI. Reactivity Data

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Poor ventilation.

INCOMPATIBILITY: Strong acids (produce hydrogen gas)

HAZARDOUS DECOMPOSITION PRODUCT: Metallic oxide.

HAZARDOUS POLYMERIZATION: Will not occur

This information is taken from sources or based upon data believed to be reliable; however, Elgen Manufacturing Company, INC makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.

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I. Product

PRODUCT NAME: ELGEN Aluminum Products

CLASS: Metal

II. Physical Data

APPEARANCE: Silvery ductile metal

SPECIFIC GRAVITY: 2.5+

MELTING POINT: 480-649°C

III. Hazardous Ingredients

<u>Material</u>	<u>CAS- Numbe</u>	<u>OSHA/PEL</u>	<u>ACGIH/TLV</u>
Aluminum	7429-90-5	15 mg/M3 . Total dust 5 mg/M3 . Respirable fraction	10 mg/M3 . Metal Dust 5 mg/M3 . Welding fume
Chromium*	7440-47-3	1.0 mg/M3 (Chromium metal)	0.5 mg/Ml & Cr III compounds
Cooper	7440-50-8	0.1 mg/M3 . Fume (as Cu) 1.0g/M3 . sts (Dusts & mists)	0.1 mg/M3 . Fume 1.0g/M3 . sts (Dusts & mists)
Iron	7439-89-6	10 mg/M3 (as Fe2O3 fume)	5 mg/M3 Iron oxide dust & fume
Magnesium	7439-95-4	15mg/M3 Total Dust	10mg/M3 (fume)
Magnese	7439-96-5	5 mg/M3 . Respirable fraction	0.2 mg/M3
Silicon	7440-2-]3	15 mg/M3 Total dust 5 mg/M3 – Respirable fraction	10 mg/M3
Zinc*	7440-66-6	5mg/M3 (as ZnO fume)	5mg/M3 (as ZnO fume)

IV. Health Hazard Data

ROUTE OF EXPOSURE: Inhalation of fumes or dust, skin contact or ingestion.

EFFECTS OF OVEREXPOSURE:

Chromium: Chromium dust can cause irritation of the eyes, skin, and respiratory tract. Additional chromium compounds can be formed during processing and cause dermatitis, allergic reactions, and skin ulcers. Chronic overexposure can cause perforation of the nasal septum, respiratory sensitization, asthma, lung damage kidney damage, and cancer. Chromium VI compounds are listed as a Group I carcinogen by IARC and NTP.

Cooper: Acute overexposure to fumes of cooper may cause metal fume fever with flu-like symptoms. Copper dust and fume can cause irritation of the upper respiratory tract, metallic taste in the mouth, and nausea. Chronic overexposures can cause reduction in red blood cells, skin abnormalities, and hair discoloration.

Iron: The inhalation of iron oxide fumes or dust may cause an apparent benign pneumoconiosis which is called siderosis. Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of body fluids, and liver damage.

Magnesium: Exposure to magnesium may cause metal fume fever with flu-like symptoms. Particles imbedded in the skin may cause severe lesions. Manganese: Excessive and prolonged inhalation of manganese (generally over two years exposure) can cause damage to the central nervous system. The pathology resembles Parkinson Disease. Also, workers routinely exposed to high concentrations of manganese display an unusually high incidence of respiratory disease.

Silicon: Chronic overexposures can cause chronic bronchitis and narrowing of the airways. Studies with experimental animals by injection have found lesions of the lungs. Zinc: Zinc is low in toxicity, but inhalation of fumes/oxides may cause metal fume fever. Onset of symptoms may be delayed 4-12 hours and include irritation of the mouth and throat, coughing stomach pain, headache, nausea, vomiting, metallic taste, chills, fever, pains in the muscles and joints, thirst, bronchitis or pneumonia and a blush tint to the skin. These symptoms go away in 24 to 48 hours and leave no effect.

Under normal handling conditions the solid alloy presents no significant health hazards. Processing of the alloy by dust or fume producing operation (grinding, buffing, heating, welding, etc.) may result in the potential for exposure to airborne metal particulates or fume.

V. Fire and Explosion Hazard Data

FLASH POINT: N/A

EXTINGUISHING MEDIA: Use class D extinguishing agents.

SPECIAL PROCEDURES: Firefighters should wear equipment to protect against noxious fumes and protective clothing.

EXPLOSION HAZARD: Fire and explosion hazard is high for aluminum when the material is in the form of dust and exposed to heat, flames, chemical reaction or in contact with powerful oxidizers.

VI. Spill or Leak Procedures

No special precautions are necessary for spills of bulk material. If large quantities of dust are spilled, remove by vacuuming or wet-sweeping to prevent elevated concentration of airborne dust. Vacuum systems must be designed for explosive dust. Avoid all ignition sources. If airborne dust is generated during the clean up, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations. Clean up personnel should wear respirators and protective clothing. Local ventilation is recommended to maintain dust levels below the applicable PEL's and TLV's. Ventilation systems must be designed for explosive dusts..

VII. Special Protection

VENTILATION: Local exhaust ventilation should be provided to keep worker exposures within allowable limits. Ventilation systems must be designed for explosive dusts.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved organic vapor respirators when vapor concentrations exceed to TLV.

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury.

PROTECTIVE GLOVES: As needed

VIII. Emergency and First Aid Procedures

IN EYES: For contact with dust or particulates, flush eyes with large amounts of water. Eye injuries from solid particles should be treated by a physician immediately.

ON SKIN: Remove contaminated clothing. Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention

INGESTED INHALATION: If acute overexposure to dusts or fumes occurs, remove victim from the adverse environment and seek medical attention.

IX. Special Precautions

As supplied, this product does not present a health hazard. Processing of the product for final uses can include formation of dusts, particulates, or fumes, some of which may present health hazards.

This information is taken from sources or based upon data believed to be reliable; however, DUCTMATE INDUSTRIES, INC. makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.

X. Reactivity Data

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Strong acids and bases can produce flammable/explosive gas. Molten metal may react violently with water.

INCOMPATIBILITY: Acids, bases and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCT: Metal fume. Welding/cutting operations may generate ozone and oxides of nitrogen.

HAZARDOUS POLYMERIZATION: Will not occur.

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I. Product

PRODUCT NAME: Stainless Steel, All Grades

CLASS: Steel

II. Physical Data

APPEARANCE: Metallic Solid

SPECIFIC GRAVITY: 7.65 – 7.94

MELTING POINT: 2550 - 2650°F

III. Hazardous Ingredients

<u>MATERIAL:</u>	<u>% WEIGHT</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Iron	45 - 90	10 mg/M3 (TWA as Fume)	5 mg/M3 (TWA as Fume)
Manganese	0 - 15	1 mg/M3 (TWA as Fume)	1 mg/M3 (TWA as Fume)
Silicon	0 - 3	10 mg/M3 (TWA)	10 mg/M3 (TWA)
Chromium*	10.5 - 30	1 mg/M3 (TWA)	0.5 mg/M3 (TWA)
Nickel*	0 – 40	1 mg/M3 (TWA)	1 mg/M3 (TWA)
Molybdenum	0 - 5	5 mg/M3 (TWA as soluble)	5 mg/M3 (TWA as soluble)
Copper	0 – 5	0.1 mg/M3 (TWA as fume)	0.2 mg/M3 (TWA as fume)
Aluminum	0 – 1	5 mg/M3 (TWA as fume)	5 mg/M3 (TWA as fume)
Cobalt	0 - 1	0.05 mg/M3 (TWA)	0.05 mg/M3 (TWA)

*Suspect Carcinogen by NTP and IARC

IV. Health Hazard Data

ROUTE OF EXPOSURE: Inhalation of dusts or fumes.

EFFECTS OF OVEREXPOSURE:

Stainless, as a solid, is not toxic and presents no health hazard. Overexposure to dusts or fumes which may result during heating, grinding, cutting, brazing or welding can pose significant health hazards as described below.

Iron: Siderosis, no fibrosis

Nickel: Nickel compounds are suspect carcinogens by inhalation. The most common effect resulting from exposure to nickel compounds is "nickel itch", a form of dermatitis.

Chromium: Suspect carcinogen and tumorigen. Dermatitis may result from exposure to chromium fumes.

Manganese: Can affect central nervous system, including disturbances in gait and speech. Pulmonary system damage may result from inhalation of fume and dust.

Molybdenum: Irritation of nose and throat, weight loss and digestive disturbances in animals. No industrial poisoning have been reported.

Copper: May be responsible for one form of metal fume fever. Metal fume fever's symptoms include cough, headache, fever, nausea, chilling, pain in muscles and joints, and metal taste in mouth. This condition is usually transitory lasting one day or less.

Silicon: May produce X-ray changes in lungs without disability.

Aluminum: No known health effects.

Cobalt: an experimental carcinogen.

Medical conditions known to be aggravated by exposure to this material: Persons with lung disorders or diseases or skin disorders may be at added risk as a result of overexposure to this material.

V. Fire and Explosion Hazard Data

LASH POINT: N/A

XTINGUISHING MEDIA: Use dry powder for metal fires.

PECIAL PROCEDURES: Firefighters should wear equipment to protect against noxious fumes.

VI. Spill or Leak Procedures

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods which avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the clean up, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations.

VII. Special Protection

VENTILATION: Local exhaust ventilation should be provided to keep worker exposures within allowable limits.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved organic vapor respirators when vapor concentrations exceed the TLV.

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury.

PROTECTIVE GLOVES: As needed.

VIII. Emergency and First Aid Procedures

INHALATION: If acute overexposure to dust or fumes occurs, remove victim from the adverse environment and seek medical attention.

SKIN CONTACT: Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush immediately with running water for fifteen minutes. If irritation persists, seek medical attention.

INGESTION: N/A

IX. Carcinogenic Assessment

Nickel and Chromium have been identified as suspect carcinogens by NTP, IARC or OSHA.

X. Special Precautions

HANDLING AND STORAGE: Use good housekeeping practices to avoid excessive dust accumulation.

XI. Reactivity Data

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Poor ventilation.

INCOMPATIBILITY: Strong acids (produce hydrogen gas).

HAZARDOUS DECOMPOSITION PRODUCT: During certain operations such as welding, burning, melting or hot rolling, metal fumes may be generated. Hexavalent chromium which is suspect carcinogen may result from pickling of stainless.

HAZARDOUS POLYMERIZATION: Will not occur.

This information is taken from sources or based upon data believed to be reliable; however, Elgen Manufacturing Company, INC makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.

MATERIAL SAFETY DATA SHEET

Elgen Manufacturing Company INC.

300 Murray Hill Road. East Rutherford, NJ 07073

(800)503-9805

ISSUE DATE: 6/10/2009

EMERGENCY PHONE NUMBER: INFOTRAC: (800) 535-5053

I. Product

PRODUCT NAME: Aluminized Steel Products

CLASS: Steel

II. Physical Data

APPEARANCE: Odorless solid with metallic luster

SPECIFIC GRAVITY: 8

MELTING POINT: 480° - 1500°C

III. Hazardous Ingredients

<u>Material</u>	<u>% WEIGHT</u>	<u>CAS Number</u>	<u>OSHA/PEL</u>	<u>ACGIH/TLV</u>
Iron	80-99	7439-89-6	10mg/M3 (as Fe ₂ O ₃ fume)	5 mg/M3 (Iron oxide dust fume)
Aluminum	1-20	7429-90-5	15 mg/M3 . Total dust 5 mg/M3 . Respirable fraction	10 mg/M3 . Metal Dust 5 mg/M3 . Welding fume
Silicon	0-2	7440-21-3	15 mg/M3 -Total dust 5 mg/M3 – Respirable fraction	10 mg/M3

IV. Health Hazard Data

ROUTE OF EXPOSURE: Inhalation of fumes or dust and skin contact.

EFFECTS OF OVEREXPOSURE:

No toxic effects would be expected from its inert solid form. Prolonged, repeated exposures above the permissible limits to fumes or dusts generated during heating, cutting, brazing or welding may cause adverse health effects associated with the following constituents:

Inhalation: Aluminum: No known health effects. Generally considered to be in the nuisance dust category. TDLO = 506 gm/Kg an Iron: The inhalation of iron oxide fumes or dust may cause an apparent benign pneumoconiosis which is called siderosis. Ccause irritation of gastrointestinal tract, bleeding, changes in the pH of body fluids, and liver damage.

Silicon: Chronic overexposures can cause chronic bronchitis and narrowing of the airways. Studies with experimental animals by injection have found lesions of the lungs. Oil Mist: Pulmonary effects including irritation and pneumonitis at high concentrations, TDLO = 14 gm/Kg (intrapleural, rat).

Note: Some constituents pose more potential hazards than others, depending upon their inherent toxicity and concentration. Of special concern are iron and perhaps aluminum silicon, dH# oil mist.

Skin Contact: May cause irritation. Oil mist may cause dermatitis.

Eye Contact: May cause irritation.

Ingestion: May cause irritation of the mouth and throat.

V. Fire and Explosion Hazard Data

FLASH POINT: N/A

EXTINGUISHING MEDIA: Use dry powder for metal fires.

SPECIAL PROCEDURES: Firefighters should wear equipment to protect against noxious fumes.

VI. Spill or Leak Procedures

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods which avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the clean up, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations.

VII. Special Protection

VENTILATION: Ventilation, as described in the Industrial Ventilation Manual produced by the American Conference of Governmental Industrial Hygienists, shall be provided in areas where exposures are above the permissible exposure limits or threshold limit values specified by OSHA or other local, state, and federal regulations.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved organic vapor respirators when vapor concentrations exceed TLV or other recommended limits, in accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134).

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury.

PROTECTIVE GLOVES: As needed

VIII. Emergency and First Aid Procedures

INHALATION: If acute overexposure to dust or fumes occurs, remove victim from the adverse environment and seek medical attention.

SKIN CONTACT: Remove contaminated clothing and wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush immediately with running water for fifteen minutes occasionally lifting the lower and upper lids. If irritation persists, seek medical attention.

INGESTION: Seek medical attention, if necessary.

IX. Carcinogenic Assessment

The listed ingredients have NOT been identified as a suspect carcinogen by NTP, IARC, or OSHA.

X. Special Precautions

HANDLING AND STORAGE: Use good housekeeping practices to avoid excessive dust accumulation.

XI. Reactivity Data

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Poor ventilation.

INCOMPATIBILITY: Acids, bases and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCT: Metal fumes and certain noxious gases, such as CO, may be produced during welding or burning operations.

HAZARDOUS POLYMERIZATION: Will not occur.

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(800)503-9805

ISSUE DATE: 6/10/2009

EMERGENCY PHONE NUMBER: INFOTRAC: (800) 535-5053

I. Product

PRODUCT NAME: ELGEN Aluminum Products

CLASS: Metal

II. Physical Data

APPEARANCE: Silvery ductile metal

SPECIFIC GRAVITY: 2.5+

MELTING POINT: 480-649°C

III. Hazardous Ingredients

<u>Material</u>	<u>CAS- Numbe</u>	<u>OSHA/PEL</u>	<u>ACGIH/TLV</u>
Aluminum	7429-90-5	15 mg/M3 . Total dust 5 mg/M3 . Respirable fraction	10 mg/M3 . Metal Dust 5 mg/M3 . Welding fume
Chromium*	7440-47-3	1.0 mg/M3 (Chromium metal)	0.5 mg/Ml & Cr III compounds
Cooper	7440-50-8	0.1 mg/M3 . Fume (as Cu) 1.0g/M3 . sts (Dusts & mists)	0.1 mg/M3 . Fume 1.0g/M3 . sts (Dusts & mists)
Iron	7439-89-6	10 mg/M3 (as Fe2O3 fume)	5 mg/M3 Iron oxide dust & fume
Magnesium	7439-95-4	15mg/M3 Total Dust	10mg/M3 (fume)
Magnese	7439-96-5	5 mg/M3 . Respirable fraction	0.2 mg/M3
Silicon	7440-2-]3	15 mg/M3 Total dust 5 mg/M3 – Respirable fraction	10 mg/M3
Zinc*	7440-66-6	5mg/M3 (as ZnO fume)	5mg/M3 (as ZnO fume)

IV. Health Hazard Data

ROUTE OF EXPOSURE: Inhalation of fumes or dust, skin contact or ingestion.

EFFECTS OF OVEREXPOSURE:

Chromium: Chromium dust can cause irritation of the eyes, skin, and respiratory tract. Additional chromium compounds can be formed during processing and cause dermatitis, allergic reactions, and skin ulcers. Chronic overexposure can cause perforation of the nasal septum, respiratory sensitization, asthma, lung damage kidney damage, and cancer. Chromium VI compounds are listed as a Group I carcinogen by IARC and NTP.

Cooper: Acute overexposure to fumes of copper may cause metal fume fever with flu-like symptoms. Copper dust and fume can cause irritation of the upper respiratory tract, metallic taste in the mouth, and nausea. Chronic overexposures can cause reduction in red blood cells, skin abnormalities, and hair discoloration.

Iron: The inhalation of iron oxide fumes or dust may cause an apparent benign pneumoconiosis which is called siderosis. Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of body fluids, and liver damage.

Magnesium: Exposure to magnesium may cause metal fume fever with flu-like symptoms. Particles imbedded in the skin may cause severe lesions. Manganese: Excessive and prolonged inhalation of manganese (generally over two years exposure) can cause damage to the central nervous system. The pathology resembles Parkinson Disease. Also, workers routinely exposed to high concentrations of manganese display an unusually high incidence of respiratory disease.

Silicon: Chronic overexposures can cause chronic bronchitis and narrowing of the airways. Studies with experimental animals by injection have found lesions of the lungs. Zinc: Zinc is low in toxicity, but inhalation of fumes/oxides may cause metal fume fever. Onset of symptoms may be delayed 4-12 hours and include irritation of the mouth and throat, coughing stomach pain, headache, nausea, vomiting, metallic taste, chills, fever, pains in the muscles and joints, thirst, bronchitis or pneumonia and a blush tint to the skin. These symptoms go away in 24 to 48 hours and leave no effect.

Under normal handling conditions the solid alloy presents no significant health hazards. Processing of the alloy by dust or fume producing operation (grinding, buffing, heating, welding, etc.) may result in the potential for exposure to airborne metal particulates or fume

V. Fire and Explosion Hazard Data

FLASH POINT: N/A

EXTINGUISHING MEDIA: Use class D extinguishing agents.

SPECIAL PROCEDURES: Firefighters should wear equipment to protect against noxious fumes and protective clothing.

EXPLOSION HAZARD: Fire and explosion hazard is high for aluminum when the material is in the form of dust and exposed to heat, flames, chemical reaction or in contact with powerful oxidizers.

VI. Spill or Leak Procedures

No special precautions are necessary for spills of bulk material. If large quantities of dust are spilled, remove by vacuuming or wet-sweeping to prevent elevated concentration of airborne dust. Vacuum systems must be designed for explosive dust. Avoid all ignition sources. If airborne dust is generated during the clean up, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations. Clean up personnel should wear respirators and protective clothing. Local ventilation is recommended to maintain dust levels below the applicable PEL's and TLV's. Ventilation systems must be designed for explosive dusts..

VII. Special Protection

VENTILATION: Local exhaust ventilation should be provided to keep worker exposures within allowable limits. Ventilation systems must be designed for explosive dusts.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved organic vapor respirators when vapor concentrations exceed to TLV.

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury.

PROTECTIVE GLOVES: As needed

SKIN CONTACT: Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

VIII. Emergency and First Aid Procedures

INHALATION: If acute overexposure to dust or fumes occurs, remove victim from the adverse environmental and seek medical attention.

SKIN CONTACT: Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush immediately with running water for fifteen minutes. If irritation persists, seek medical attention.

INGESTION: Seek medical attention if large quantities of materials have been ingested.

IX. Carcinogenic Assessment

Aluminum has NOT been identified as a suspect carcinogen by NTP, IARC, or OSHA. Nickel and Chromium have been identified as suspect carcinogens by NTP and IARC

X. Special Precautions

HANDLING AND STORAGE: Use good housekeeping practices to avoid excessive dust accumulation.

XI. Reactivity Data

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Strong acids and bases can produce flammable/explosive gas. Molten metal may react violently with water.

INCOMPATIBILITY: Acids, bases and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCT: Metal fume. Welding/cutting operations may generate ozone and oxides of nitrogen.

HAZARDOUS POLYMERIZATION: Will not occur.

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300 Murray Hill Road. East Rutherford, NJ 07073

(800)503-9805

ISSUE DATE: 6/10/2009

EMERGENCY PHONE NUMBER: INFOTRAC: (800) 535-5053

I. Product

PRODUCT NAME: Brass Products

CLASS: Metal

II. Physical Data

BOILING POINT: ND

SPECIFIC GRAVITY: 8.370 ± 0.125 G/CC

MELTING POINT: 1650 F

% VOLATILE: ND

VAPOR PRESSURE: ND

EVAPORATION RATE (WATER=1): ND

VAPOR DENSITY (AIR=1): ND

VISCOSITY: ND

% SOLUBILITY IN WATER: ND

POUR POINT: ND

pH: ND

APPEARANCE/ODOR: GOLD OR YELLOW COLORED

III. Hazardous Ingredients

<u>COMPONENT</u>	<u>CAS NO.</u>	<u>%</u>	<u>EXPOSURE LIMITS - REFERENCE</u>
Copper	7440-50-8	60-63	1 mg/M3 TLV (copper dusts and mists) and 0.2 mg/M3 TLV (copper fumes) (ACGIH 1987-88) 1 mg/M3 PEL (copper dusts and mists) and 0.1 mg/M3 PEL (copper fumes) (OSHA)
Zinc	7440-66-6	30-40	5 mg/M3 TLV and 10 mg/M3 STEL (zinc fumes)(ACGIH 1987-88) 10 mg/M3 (total dust) TLV (zinc dusts) as nuisance dust (ACGIH 1987-88) 5 mg/M3 PEL (zinc fumes) (OSHA) 5 mg/M3 10-hour TWA and 15 mg/M3 15-minute CEIL (zinc fumes) (NIOSH)
Lead	7439-92-1	2.5- 3.7	0.05 mg/M3 PEL (OSHA) 0.15 mg/M3 TLV (ACGIH 1987-88) 0.1 mg/M# 10-hour TWA (NIOSH)
Other	NA	Trace	NA

IV. Health Hazard Data

INGESTION: No exposure under normal conditions. SLIGHTLY TOXIC – if powdered material ingested. Symptoms may include metallic taste, thirst, abdominal pain, vomiting and bloody diarrhea.

SKIN: SLIGHTLY TO MODERATELY IRRITATING. Repeated or prolonged skin contact may cause reddening, itching and inflammation. May cause allergic reactions in some individuals.

EYE: No exposure under normal conditions. SLIGHTLY TO MODERATELY IRRITATING – if contacted with powdered material. Abrasive action from dust or splinters may cause damage to the outer surface of the eye.

INHALATION: No exposure under normal conditions. Exposure to dusts or fumes may cause respiratory tract irritation. Repeated or prolonged exposure to respirable dust or fume may cause mixed pneumoconiosis and “Metal Fume Fever”. Symptoms may include metallic taste, thirst, abdominal pain, vomiting, bloody diarrhea, nose bleeding, headache, fever, chills, muscle aches, dry cough and chest pain.

SPECIAL TOXIC EFFECTS: No exposure under normal conditions. Based on lead content, exposure to respirable dusts or fumes or ingestion of powdered material may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling or loss of feeling in the fingers, arms and legs. May also cause anemia, irregular heart rhythm and renal, brain and immune system damage. May cause adverse reproductive effects. Damages genetic material in mammalian test systems.

V. Fire and Explosion Hazard Data

FLASH POINT: NA

AUTOIGNITION TEMPERATURE: NA

FLAMMABILITY LIMITS IN AIR (% BY VOL) LOWER: ND **UPPER:** ND

BASIC FIREFIGHTING PROCEDURES:

Use a water spray to cool fire-exposed containers, structures and to protect personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NA.

VI. Spill or Leak Procedures

SPILL OR RELEASE TO THE ENVIRONMENT: NA

WASTE DISPOSAL: NA

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION: NA.

VII. Special Protection

EYE PROTECTION: When generating dust, wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses. Have eye baths readily available where eye contact can occur.

SKIN PROTECTION: Wear protective clothing to prevent mechanical injury.

RESPIRATORY PROTECTION: None normally needed.

VIII. Emergency and First Aid Procedures

INGESTION: If victim is conscious, give 1-3 glasses of waer or milk and induce vomiting. Dio not make an unconscious person vomit. Keep affected person warm and at rest. Get immediate medical attention.

SKIN CONTACT: Wash area of contact thoroughly with soap and water. Get medical attention if irritation persists.

EYE CONTACT: Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION: Remove affected person from source of exposure. If not breathing, ensure open airway and institute Cardiopulmonary

Resuscitation (CPR). If breathing is difficult, administer oxygen if available. Get immediate medical attention..

INGESTION: Seek medical attention if large quantities of materials have been ingested.

IX. Carcinogenic Assessment

Brass has NOT been identified as a suspect carcinogen by NTP, IARC, or OSHA. Nickel and Chromium have been identified as suspect carcinogens by NTP and IARC

X. Special Precautions

HANDLING AND STORAGE: Use good housekeeping practices to avoid excessive dust accumulation.

XI. Reactivity Data

STABILITY/INCOMPATIBILITY

Stable under normal conditions of use.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:

Contact with acids and alkali hydroxides results in evolution of hydrogen.

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(800)503-9805

ISSUE DATE: 6/10/2009

EMERGENCY PHONE NUMBER: INFOTRAC: (800) 535-5053

I. Product

PRODUCT NAME: Bronze Products

CLASS: Metal

II. Physical Data

BOILING POINT: ND

SPECIFIC GRAVITY: 8.370 ± 0.125 G/CC

MELTING POINT: 1650 F

% VOLATILE: ND

VAPOR PRESSURE: ND

EVAPORATION RATE (WATER=1): ND

VAPOR DENSITY (AIR=1): ND

VISCOSITY: ND

% SOLUBILITY IN WATER: ND

POUR POINT: ND

pH: ND

APPEARANCE/ODOR: GOLD OR YELLOW COLORED

III. Hazardous Ingredients

<u>Material or Compound</u>	<u>CAS Number</u>	<u>% Weight</u>	<u>OSHA PEL (mg/m3)</u>	<u>ACHIG-TLV (mg/m3)</u>
Aluminum (Al)	7429-90-5	<0.01 - 0.5	15	10
Antimony (Sb)	7440-36-0	<0.8 - 3.0	0.5	0.5
Copper (Cu)	7440-50-8	<61 - 85	1	1
Iron (Fe)	7439-89-6	<0.01 - 0.04	10	10
Lead (Pb)	7439-92-1	<3.0 - 24.5	0.05	0.05
Nickel (Ni)	7440-02-2	<0.05 - 1.0	1	1
Tin (Sn)	7440-31-5	<4.7 - 14.0	2	2
Zinc (Zn)	7440-66-6	<0.5 - 4.0	15	5

Note: The above is a summary of principal elements. Various grades of copper alloys will contain different combinations of these elements. Trace elements may also be present in minute amounts.

IV. Health Hazard Data

Copper Alloy products in their solid state present no inhalation, ingestion, or contact health hazard. Operations such as burning, welding, sawing, brazing, grinding, and machining, which result in elevating the temperature of the product to, or above its melting point, or result in the generation of airborne particulates, may present hazards. The major exposure hazard is inhalation. Effects or overexposure to fume and dust are as follows:

Acute: Excessive inhalation of metallic fumes and dust may result in irritation of eyes, nose and throat. High concentrations of fumes and dust of iron-oxide, manganese, copper, zinc and lead may result in metal fume fever. Typical symptoms last from 12 to 48 hours and consist of a metallic taste in the mouth, dryness and irritation of the throat chills and fever.

Medical Conditions aggravated by Exposure: Individuals with chronic respiratory disorders (i.e.: asthma, chronic bronchitis, emphysema, etc.) may be adversely affected by any fume or airborne particulate matter exposure.

Occupational Exposure Limits: See Products Ingredients Section 1. Chromium and Nickel have been identified by the International Agency for Research on Cancer (IARC) and/or the National Toxicology Program (NTP) as potential cancer causing agents.

V. Fire and Explosion Hazard Data

FLASH POINT: NA

AUTOIGNITION TEMPERATURE: NA

FLAMMABILITY LIMITS IN AIR (% BY VOL) LOWER: ND **UPPER:** ND

BASIC FIREFIGHTING PROCEDURES: For molten metal use dry powder or sand (DO NOT USE WATER ON MOLTEN METAL).

UNUSUAL FIRE AND EXPLOSION HAZARDS: NA.

VI. Spill or Leak Procedures

SPILL OR RELEASE TO THE ENVIRONMENT: NA

WASTE DISPOSAL: NA

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION: NA.

VII. Special Protection

Respiratory Protection: Appropriate dust/mist/fume respirator should be used to avoid excessive inhalation of particulates. If exposure limits are reached or exceeded, use NIOSH approved equipment.

Eyes and Face: Safety glasses should be worn when grinding or cutting. Face shields should be worn when welding or cutting.

Hands, Arms and Body: Protective gloves should be worn as required for welding, burning or handling operations.

Other Clothing and Equipment: As required depending upon operations and safety codes..

VIII. Emergency and First Aid Procedures

Inhalation: Remove to fresh air; if condition continues, consult a physician.

Eye Contact: Flush thoroughly with running water to remove particulate; obtain medical attention.

Skin Contact: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists.

Ingestion: If significant amounts of metal are ingested, consult a physician

IX. Carcinogenic Assessment

Bronze has NOT been identified as a suspect carcinogen by NTP, IARC.

X. Special Precautions

Spill or Leak Procedures: Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for reuse.

Waste Disposal Method: Used or unused products should be disposed of in accordance with Federal, State and local laws and regulations. Disposer must comply with Federal, State and local disposal or discharge laws.

XI. Reactivity Data

STABILITY/INCOMPATIBILITY: Stable/ (Materials to avoid) Reacts with strong acids to form Hydrogen gas.

Conditions to Avoid: Copper Alloy products at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fumes and dust.

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

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