

# MATERIAL SAFETY DATA SHEET



**Vincent Metal Goods**

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## SECTION I: IDENTIFICATION

Material Name: Aluminum, Beryllium, Carbon, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Phosphorous, Silicon, Silver, Sulphur, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Yttrium Oxide, Zinc

## SECTION II: HAZARD IDENTIFICATION

	CAS-Number	PEL DUST	PEL FUME	TLV DUST	TLV FUME	ACGIH STEL DUST	ACGIH STEL FUME
Aluminum #	(7429-90-5)	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>		
Arsenic #	(7440-38-2)	0.01 mg/m <sup>3</sup>		0.02 mg/m <sup>3</sup>			
Beryllium #	(7440-41-7)	0.002 mg/m <sup>3</sup>		0.002 mg/m <sup>3</sup>		0.005 mg/m <sup>3</sup>	
Carbon	(7440-44-0)	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>			
Chromium #	(7440-47-3)	1 mg/m <sup>3</sup>		0.5 mg/m <sup>3</sup>			
Cobalt #	(7440-48-4)	0.05 mg/m <sup>3</sup>		0.05 mg/m <sup>3</sup>			
Columbium	(7440-03-1)	15 mg/m <sup>3</sup>		10 mg/m <sup>3</sup>			
Copper #	(7440-50-8)	1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup>		
Iron	(7439-89-6)	10 mg/m <sup>3</sup>		5 mg/m <sup>3</sup>			
Lead #	(7439-92-1)	0.05 mg/m <sup>3</sup>		0.05 mg/m <sup>3</sup>			
Magnesium	(7439-95-4)	15 mg/m <sup>3</sup>		10 mg/m <sup>3</sup>			
Manganese #	(7439-96-5)	5 mg/m <sup>3</sup>		.20 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>		3 mg/m <sup>3</sup>
Molybdenum	(7439-98-7)	10 mg/m <sup>3</sup>		10 mg/m <sup>3</sup>			
Nickel #	(7440-02-0)	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>		
Phosphorous #	(7723-14-0)	0.1 mg/m <sup>3</sup>		0.1 mg/m <sup>3</sup>			
Silicon	(7440-21-3)	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> ①			
Silver #	(7740-22-4)	0.01 mg/m <sup>3</sup>		0.1 mg/m <sup>3</sup>			
Sulphur	(7704-34-9)	15 mg/m <sup>3</sup>		10 mg/m <sup>3</sup>		5 mg/m <sup>3</sup>	
Tantalum	(7440-25-7)	5 mg/m <sup>3</sup>		5 mg/m <sup>3</sup>			
Tellurium	(13494-80-9)	0.01 mg/m <sup>3</sup>		0.01 mg/m <sup>3</sup>			
Tin	(7440-31-5)	2 mg/m <sup>3</sup>		2 mg/m <sup>3</sup>			
Titanium	(7440-32-6)						
Tungsten	(7440-33-7)	5 mg/m <sup>3</sup>		5 mg/m <sup>3</sup>			
Vanadium #	(7440-62-2)	0.5 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>		
Yttrium Oxide	(1314-36-9)	1 mg/m <sup>3</sup>		1 mg/m <sup>3</sup>			
Zinc #	(7440-66-6)	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	

Note: antimony trioxide, arsenic, beryllium, cadmium, cobalt-chromium alloy, lead and nickel have been identified as potential human carcinogens. # denotes a toxic chemical or chemicals subject to reporting requirements of Section 313 of Title III of S.A.R.A.

① Value is for total dust containing no asbestos and less than 1% free silicon.

**SECTION III PHYSICAL DATA Physical Data**

	ALUMINUM	COPPER	LEAD	STEEL	NICKEL
Specific Gravity (H <sub>2</sub> O = 1)	2.5+	7.5+	8+	7+	8-9
Melting Point (C)	480+	1000+	180+	1300+	>1400
Color	Silver	Yellow to Red	Soft Gray	Gray-Black	Silver
Solubility in H <sub>2</sub> O	None	None	None	None	None

**SECTION IV FIRE AND EXPLOSION DATA**

Flash Point: (Method Used) Not Applicable

Extinguishing Media: See Below

Flammable Limits (LEL-UEL): Not Applicable

Auto Ignition Temp.: Not Applicable

Special Fire Fighting Procedures: Solid massive form is not combustible. Fire and explosion hazards are moderate when material is in the form of dust and exposed to heat, flames, chemical reaction, or in contact with powerful oxidizers. Use special mixtures of dry chemical or sand. Firefighters should wear self-contained breathing apparatus and protective clothing.

**SECTION V REACTIVITY DATA**

Stability: Stable

Conditions to Avoid: Stable under normal conditions of transport and storage. Molten metal may react violently with water.

Incompatibility (Materials to Avoid): Acids, bases, and oxidizers.

Hazardous Decomposition or by-products: Metal fume.

Hazardous Polymerization: Will not occur.

**SECTION VI HEALTH, PPE, AND DATA**

Permissible exposure limits and threshold limit values. See Section II.

Route(s) of Entry: Inhalation: Yes; Skin: Yes; Ingestion: Yes

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. The exposure levels in Section II are relevant to fumes and dusts.

**Effects of Overexposure:**

**Aluminum** – Excessive exposure to aluminum fume and dust has been associated with lung disease, but this effect is probably due to simultaneous silica exposure.

**Arsenic** – Arsenic compounds can be absorbed into the body from industrial exposures, especially by inhalation and ingestion. Signs of toxicity are dermal lesions, conjunctivitis, upper respiratory tract irritation, nausea, vomiting, peripheral neuritis and occasionally anemia. Arsenic in combination with promoters such as sulfur dioxide, metal oxide fumes and smoking has caused respiratory cancer. Arsenic has been identified as a carcinogen by NTP and IARC.

**Beryllium** – Inhalation of beryllium dust or fume may result in the production of an acute or chronic systemic disease depending upon the level of exposure and the beryllium compound involved. Granulomatous lesions of the skin, liver, kidneys, spleen and lymph nodes have been reported.

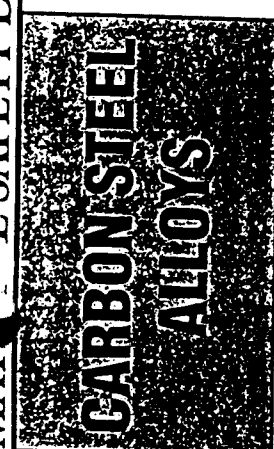
Damage to the lungs may be in both the acute and chronic forms, both of which have similar signs and symptoms. These include a relatively non-productive cough, progressive difficulty in breathing, loss of appetite, and loss of weight. The major difference between the two is the suddenness of onset and the rate of progression. In the acute form, the symptoms appear in several hours to several weeks after exposure and there is usually rapid progression of signs including dyspnea, anorexia, and extreme weight loss. Complete recovery is possible and fatal cases usually result from acute heart disease. In chronic beryllium disease, the symptoms or signs are generally delayed in their onset and are persistent in nature. They may be triggered or aggravated by stresses such as pregnancy, respiratory infection and thyrotoxicosis. In the progression of the disease, symptoms of heart disease may occur. Beryllium is also a suspected human carcinogen and has caused cancer in laboratory animals.

**Cadmium** – Inhalation of cadmium fumes may cause respiratory irritation with a sore, dry throat and a metallic taste followed by a cough, chest pain, and difficulty in breathing. Bronchitis, pneumonitis, and pulmonary edema have been reported as a result of the irritation of fumes. Headaches, dizziness, loss of appetite, and weight loss have also been reported and the liver, kidneys and bone marrow may be injured by the presence of the metal. Continued exposure to lower levels of cadmium has resulted in chronic poisoning characterized by irreversible lung damage and kidney damage. A single, high level exposure to cadmium can cause severe lung irritation which may be fatal. Cadmium is also a suspected human carcinogen.

**Chromium** – In some workers, chromium compounds act as allergens and may cause dermatitis and may also produce pulmonary sensitization. Chronic acid and chromates have a direct corrosive effect on the skin and the mucous membranes of the upper respiratory tract. Although rare, there may be the possibility of skin and pulmonary sensitization. IARC has determined that there is sufficient evidence of increased lung cancer among workers in the chromate-producing industry and possibly among chromium alloy workers. This determination is supported by sufficient evidence for carcinogenicity to animals and possible mutagenicity testing of CR VI compounds.

**Cobalt** – Cobalt has been reported as causing hypersensitization-type dermatitis in individuals who are susceptible. Animal studies have shown that particulate cobalt is an acutely irritating substance and industrial exposures, possibly combined with small amounts of silica, are reported capable of producing serious pneumoconiosis which is initially of an insidious nature.

**Columbium** – Also known as Niobium, there is almost no information on the toxicity of this metal or its fumes. Russian medical literature has described early chest X-ray changes in welders and chemical workers handling niobium and tantalum, but no specific data has been found. It is expected that the metal dust and fumes could cause irritation to the skin, eyes and respiratory tract upon acute exposure.



	ALUMINUM	CARBON	CHROMIUM	COBALT	COLUMBIUM	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	PHOSPHOROUS	SILICON	SULFUR	VANADIUM
41L40		.4	.95				97.0	.25		.85	.2			.2		
90Cr-Mo		.13	9.0				89.0			.45	1.0					
514		.2	.5				98.0			.8	.2			.2		
1008		.1					99.0			.4				.25		
1018		.17					99.0			.7						
1020		.2					99.0									
1022		.2					98.0			.45				.2		
1026		.25					98.0			.85				.2		
1029		.28					98.0			.75				.2		
1030		.3					98.0			.75				.2		
1035		.35					98.0			.75				.2		
1040		.38					98.0			.75				.2		
1042		.44					98.0			.75				.2		
1045		.45					98.0			.75				.2		
1050		.5					98.0			.75				.2		
1060		.6					98.0			.75				.2		
1070		.7					98.0			.75				.2		
1117		.17					98.0			1.15				.2		
1137		.35					98.0			1.5				.2	.1	
1141		.4					98.0			1.5				.2	.1	
1144		.44					97.0			1.5				.2	.28	
1213		.1					98.0			.85			.1	.2	.28	
1214		.12					98.0	.25		1.0			.06	.2	.3	
1215		.06					98.0			.9			.06	.2	.3	
1541		.4					98.0			1.5			.06	.2	.3	
4130		.3	.95				98.0			.5	.2			.2		
4140/EDT 150		.4	.95				97.0			.85	.2			.2		
4142		.42	.95				97.0			.85	.2			.2		
4145		.45	.95				97.0			.85	.2			.2		
4145 MOD		.49	1.20				97.0			1.20	.35			.2		
4147		.47	.95				97.0			.85	.2			.2		
4150		.5	.95				97.0			.85	.2			.2		
4320		.2	.5				96.0			.5	.25	1.8		.2		.07
4330		.33	.8				95.0			.7	.25	1.8		.2		
4340		.4	.8				95.0			.7	.25	1.8		.2		
4815		.15					95.0			.5	.25	3.5		.2		
4817		.17					95.0			.5	.25	3.5		.2		
4820		.2					95.0			.5	.25	3.5		.2		
5150		.5	.8				97.0			.8				.2		
5160		.6	.8				97.0			.85				.2		
8620		.2	.5				97.0			.8	.2	.5		.2		
52100		1.0	1.45				97.0			.9				.2		
A106		.25					98.0			1.0	.2	1.0		.2		
A588		.12					97.0			1.9				.2		
C-90		.5				.6	97.0			1.9				.2		
C-95		.45					92.0		.30		1.3			.2		.40
H-11		.4	.5				98.0			.75				.2		
J-55		.38					98.0			.75				.2		
K-55		.38					97.0			.85	.2			.2		
L-80		.4	.95				97.0			.85	.2			.2		
N-60		.4	.95				97.0			.85	.2			.2		
P-110		.4	.95				97.0			.85	.2			.2		
Stress Proof		.44					97.0		1.5					.2		

Note: above products may be coated with; Tin, Terne (Lead), Galvanized (Zinc), Aluminized type 1 & 2 (Al + Si), Galvalum (Zn + Al), Galfan (Zn & Al), painted Kynar and other enamel coatings. Desirable mineral pigments may be added.