55350 — 88538

MATERIAL SAFETY DATA SHEET

Vincent Metal Goods
P.O. Box 360 • Minneapolis, MN 55440

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SECTION I. MATERIAL IDENTIFICATION

Metal and Metal Alloys of Aluminum, Copper, Lead, Nickel and Steel

SECTION II. HAZARDOUS INGREDIENTS

	CAS-Number	PEL DUST	PEL FUME	TLV DUST	TLV FUME	ACGIH STEL DUST	ACGIH STEL FUME
Aluminum #	(7429-90-5)	15 mg/m³	5 mg/m³	10 mg/m³	5 mg/m³		
Arsenic #	(7440-38-2)	0.01 mg/m³		0.02 mg/m³			
Beryllium #	(7440-41-7)	0.002 mg/m³		0.002 mg/m³		0.005 mg/m³	
Carbon	(7440-44-0)	15 mg/m³	5 mg/m³	10 mg/m³			
Chromium #	(7440-47-3)	1 mg/m³		0.5 mg/m³			
Cobalt #	(7440-48-4)	0.05 mg/m³		0.05 mg/m³			
Columbium	(7440-03-1)	15 mg/m³		10 mg/m³			
Copper #	(7440-50-8)	1 mg/m³	0.1 mg/m³	1 mg/m³	0.2 mg/m³		
Iron	(7439-89-6)	10 mg/m³		5 mg/m³			
Lead #	(7439-92-1)	0.05 mg/m³		0.05 mg/m³			
Magnesium	(7439-95-4)	15mg/m³		10mg/m³			
Manganese #	(7439-96-5)	5 mg/m³		.20 mg/m³	1 mg/m³		3 mg/m³
Molybdenum	(7439-98-7)	10 mg/m³		10 mg/m³			
Nickel #	(7440-02-0)	1 mg/m³	1 mg/m³	0.05 mg/m³	0.05 mg/m³		
Phosphorous #	(7723-14-0)	0.1 mg/m³		0.1 mg/m³			
Silicon	(7440-21-3)	15 mg/m³	5 mg/m³	10 mg/m³ ①			
Silver #	(7740-22-4)	0.01 mg/m³		0.1 mg/m³			
Sulphur	(7704-34-9)	15 mg/m³		10 mg/m³		5 mg/m³	
Tantalum	(7440-25-7)	5 mg/m³		5 mg/m³			
Tellurium	(13494-80-9)	0.01 mg/m³		0.01 mg/m³			
Tin	(7440-31-5)	2 mg/m³		2 mg/m³			
Titanium	(7440-32-6)						
Tungsten	(7440-33-7)	5 mg/m³		5 mg/m³			
Vanadium #	(7440-62-2)	0.5 mg/m³	0.1 mg/m³	0.05 mg/m³	0.05 mg/m³		
Yttrium Oxide	(1314-36-9)	1 mg/m³		1 mg/m³			
Zinc #	(7440-66-6)	10 mg/m³	5 mg/m³	10 mg/m³	5 mg/m³	10 mg/m³	

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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.

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

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SECTION III. PHYSICAL DATA Physical Form: Solid Odor: None

	ALUMINUM	COPPER	LEAD	STEEL	NICKEL
Specific Gravity (H_2O = 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_2O	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 HAZARD 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 derimal lesions, conjunctivitis, upper respiratory tract irritation, nausea, vomiting, peripheral neurilis 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.

MATERIAL SAFETY DATA — ALLOY % COMPOSITION – NICKEL

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NICKEL ALLOYS

	ALUMINUM	ARSENIC	BERYLLIUM	CARBON	CHROMIUM	COBALT	COLUMBIAM	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	NITROGEN	PHOSPHORUS	SILICON	SULPHER	TANTALUM	TELLURIUM	TIN	TITANIUM	TUNGSTEN	VANADIUM	ZINC
20					20.0		1.0	4.0	37.0				3.0	35.0											
25-6 MO					20.0			1.0	47.0				7.0	25.0											
36									64.0					36.0											
42									58.0					42.0											
200														99.0											
201														99.0											
211												5.0		95.0											
258									4.0					56.0											
301	4.0													94.0			1.0					1.0			
330					19.0				44.0					36.0			1.0								
365							3.0		52.0					44.0								1.0			
400								32.0	1.0			1.0		67.0											
404								46.0						54.0									3.0		
600					16.0				8.0					76.0											
601	1.0				23.0				14.0					61.0									4.0		
617					22.0	13.0			2.0				9.0	52.0											
622					20.0				5.0				14.0	58.0											
625					22.0		4.0		3.0				9.0	61.0											
686					21.0				1.0				16.0	58.0											
690					29.0				9.0					62.0											
718					18.0		5.0		19.0				3.0	54.0											
725					21.0		3.0		9.0				8.0	57.0								1.0			
800, 800H					21.0				46.0					33.0											
800-HT	1.0				21.0				46.0					33.0								1.0			
801					20.0				46.0			1.0		32.0								2.0			
825					22.0			2.0	30.0				3.0	42.0								1.0			
902					5.0				49.0					43.0								2.0			
925					21.0			2.0	28.0				3.0	44.0								2.0			
A-286					15.0				57.0				1.0	26.0								2.0			
C-276					16.0	1.0			6.0			1.0	16.0	57.0											
K-500	3.0							30.0	1.0			1.0		66.0								1.0			
R-405								32.0	1.0			1.0		67.0											
X-750					16.0		1.0		7.0					73.0								3.0			

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MATERIAL SAFETY DATA

ALLOY % COMPOSITION – STAINLESS STEEL

Vincent Metal Goods

STAINLESS STEEL ALLOYS	ALUMINUM	CARBON	CHROMIUM	COBALT	COLUMBIUM	COPPER	IRON	MANGANESE	MOLYBDENUM	NICKEL	NITROGEN	PHOSPHORUS	SILICON	SULPHUR	TANTALUM	TITANIUM
11CR-CB	.05	.01	11.35		.35		88.3	.25		.20	.01		1.3			.2
15-5PH		.07	15.5			4.5	72.8	1.0		5.5		.04	.1	.03	.45	
17-4PH		.07	17.5			5.00	70.6	1.0		5.0		.04	1.00	.03	.45	
18CR-CB		.03	18.5		.60		77.0	1.0		1.00		.04	1.00	.03		.30
29-4C		.02	29.0	.03	.30		66.0	.3	3.80	.30	.02	.03	.35	.01		.30
201		.15	18.0				69.0	6.0		5.5	.25	.06	1.0	.03		
301		.15	18.0				70.8	2.0		8.0		.045	1.0	.03		
302		.15	19.0				67.8	2.0		10.0		.045	1.0	.03		
303		.15	19.0				66.9	2.0	.6	10.0		.2	1.0	.15		
304		.08	20.0				66.3	2.0		10.5		.045	1.0	.03		
305		.12	19.0				64.8	2.0		13.0		.045	1.0	.03		
308		.08	21.0				63.8	2.0		12.0		.045	1.0	.03		
309		.2	24.0				57.7	2.0		15.0		.045	1.0	.03		
310		.25	26.0				48.2	2.0		1.5		.045	1.5	.03		
316		.08	18.0				61.81	2.0	3.0	14.0		.045	1.0	.03		
317L		.03	19.0				59.3	2.0	3.5	15.0	.10	.045	1.0	.03		
321		.08	19.0				65.5	2.0		12.0		.045	1.0	.03		.4
347		.08	19.0				64.0	2.0		13.0		.045	1.0	.03	.8	
405	.3	.08	14.5				83.0	1.0				.04	1.0	.03		
409		.08	11.75				68.4	1.0				.045	1.0	.045		.75
410		.15	13.5				84.3	1.0				.04	1.0	.03		
414		.15	13.5				81.8	1.0		2.5		.04	1.0	.03		
416		.15	14.0				82.3	1.25	.6			.06	1.0	.15		
420		.15	14.0				83.8	1.0				.04	1.0	.03		
430		.12	18.0				79.9	1.0				.04	1.0	.03		
431		.2	17.0				78.3	1.0		2.5		.04	1.0	.03		
434		.12	17.0				79.8	1.0	1.0				1.0	.03		
440C		1.2	18.				78.0	1.0	.75			.04	1.0	.03		.02
444		.03	18.00		.35		75.5	1.00	2.0	1.0	.03	.04	1.0	.03		1.0
446		.2	27.0				70.0	1.5			.25	.04	1.0	.03		
2205		.02	22.4				67.0	.70	3.3	5.8	.16	.025	.40			
ER 2209		.03	22.5			.75	64.0	1.3	3.0	8.0	.1	.03	.9	.03		
Nitronic 30		.03	17.0			1.00	68.7	9.0		3.0	.30	.03	1.00	.03		

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MATERIAL SAFETY DATA

ALLOY % COMPOSITION – COPPER

Vincent Metal Goods

COPPER ALLOYS	ALUMINUM	ARSENIC	BERYLLIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	PHOSPHOROS	SILICON	SULPHUR	TELLURIUM	TIN	TITANIUM	ZINC
101					99.99							.0003			.001			
102					99.95													
110					99.9													
145					99.9							.012			.6			
147					99.9									.5				
172			1.9	.1	98.1						.1							
240					80.0	.05	.05											20.0
260					70.0	.05	.07											30.0
314					89.0	.1	2.5											9.1
316					89.0	.1	1.9				1.0	.1						8.1
353					62.0	.1	1.8											36.2
360					61.5	.35	3.0											35.5
464					60.0	.1	.2									.8		39.7
485					60.0	.1	1.8									.7		37.5
510					94.8	.1	.05					.35				5.0		.3
544					88.0	.1	4.0					.5				4.0		4.0
623	10.0				87.0		3.0		.5		1.0		.25			.6		
624	11.0				86.0		3.0		.3				.25			.2		
630	10.0				82.0		3.0		1.5		5.0		.25			.2		.3
642	7.6	.15			91.2	.3	.05		.1		.25		1.8			.2		.5
651					98.5	.8	.05		.7				1.5					1.5
655					97.0	.8	.05		1.5		.6		3.0					1.5
673	.25				63.0	.5	.3		3.5		.25		1.5			.3		
694					81.5	.2	.3						4.0					14.5
706					88.5	1.5	.05		1.0		10.0							1.0
715					69.5	.5	.05		1.0		30.							1.0
932					83.0		.7									7.0		3.0
954	10.5				85.5	3.5			.5		1.5							

ALLOY % COMPOSITION – ALUMINUM

ALUMINUM ALLOYS																		
1100	99.0					.12				.05				.95				.01
1145	99.4					.05			.05	.05				.55				.05
2011	93.0					5.5	.7	.4						.4				.3
2014	93.5					4.4			.5	.8				.8				
2017	93.2			.1		4.0	.7		.6	.7				.5				.25
2024	92.0			.1		4.4	.5		1.5	.6				.5			.15	.25
2124	92.5			.1		4.4	.3		1.5	.6				.2			.15	.25
3003	97.3					.12	.7			1.2				.6				.1
3004	96.2					.25	.7		1.0	1.2				.3				.25
3005	96.3			.1		.3	.7		.4	1.2				.6			.1	.25
3105	96.6			.2		.3	.7		.5	.6				.6			.1	.4
5005	97.4			.1		.2	.7		.8	.2				.3				.25
5052	96.3			.25		.1	.4		2.5	.1				.25				.1
5086	94.1			.15		.1	.5		4.0	.45				.4			.15	.25
6061	96.7			.2		.28	.7		1.0	.15				.6			.15	.25
6063	98.0			.1		.1	.35		.7	.1				.4			.1	.1
6101	98.2			.03		.1	.5		.6	.03				.5				.1
6463	98.5					.2	.15		.7	.05				.4				.05
7050	88.9			.04		2.3	.15		2.2	.1				.12			.06	6.2
7075	88.6			.23		1.6	.5		2.5	.3				.4			.2	5.6

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MATERIAL SAFETY DATA — ALLOY % COMPOSITION – CARBON STEEL

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CARBON STEEL ALLOYS

	ALUMINUM	CARBON	CHROMIUM	COBALT	COLUMBIUM	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	PHOSPHOROUS	SILICON	SULPHUR	VANADIUM
41L40		.4	.95				97.0	.25		.85	.2			.2		
90Cr-Mo		.13	9.0				89.0			.45	1.0			.2		
514		.2	.5				98.0			.8	.2			.25		
1008		.1					99.0			.4						
1018		.17					99.0			.7						
1020		.2					99.0			.45				.2		
1022		.2					98.0			.85				.2		
1026		.25					98.0			.75				.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	.1	
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	
12L14		.12					98.0	.25		1.0			.06	.2	.3	
1215		.08					98.0			.9			.06	.2	.3	
1541		.4					98.0			1.5				.2		
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		
4330		.33	.8				95.0			.7	.25	1.8		.2		.07
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			.6	.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			.3				.2		
A106		.25					98.0			.9				.2		
A588		.12				.6	97.0			1.0	.2	1.0				
C-90		.5					97.0			1.9				.2		
C-95		.45					97.0			1.9				.2		
H-11		.4	.5				92.0		.30		1.3			.9		.40
J-55		.38					98.0			.75				.2		
K-55		.38					98.0			.75				.2		
L-80		.4	.95				97.0			.85	.2			.2		
N-80		.4	.95				97.0			.85	.2			.2		
P-110		.4	.95				97.0			.85	.2			.2		
Stress Proof		.44					97.0			1.5					.28	

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 special order paints. Residual mineral spirits may also be present.

8339-8838

Copper — Melting, grinding or cutting of copper may produce fumes or dust. Exposure to, or inhalation of these fumes or dust may present potentially significant health hazards. Fumes of copper may cause metal fume fever with flu-like symptoms, and skin and hair discoloration. While industrial dermatitis has not been reported, keratinization of the hands and the soles of the feet has been reported. Systemically as well, copper dust and fume cause irritation of the upper respiratory tract, metallic taste in the mouth, and nausea.

Iron — The inhalation of iron oxide fumes or dust may cause an apparent benign pneumoconiosis which is called siderosis. This disease is reported to be disabling, but makes x-ray diagnosis of other lung conditions difficult or impossible.

Lead — **Short-term exposure:** Lead is an accumulative poison. The effects of inhalation of fumes or dust of inorganic lead may not develop quickly. Symptoms may include decreased physical fitness, fatigue, sleep disturbance, headache, aching bones and muscles constipation, abdominal pains and decreasing appetite. The effects are reversible and complete recovery is possible. Inhalation of large amounts of lead may lead to seizures, coma and even death.

Lead — **Long-term exposure:** Long-term exposure can result in a build-up of lead in the body and more severe symptoms. These include anemia, pale skin, a blue line at the gum margin, decreased hand-grip strength, abdominal pain, severe constipation, nausea, vomiting and paralysis of the wrist joint. Prolonged exposure may also result in kidney damage. If the nervous system is affected, usually due to very high exposures, the resulting effects include severe headache, convulsions, coma, delirium and death. Alcohol ingestion and physical exertion may bring on symptoms. Continued exposure can result in decreased fertility and/or increased chance of miscarriage or birth defects.

Magnesium — Exposure to magnesium may cause metal fume fever with flu-like symptoms. Particles imbedded in the skin may cause severe lesions.

Manganese — Chronic manganese poisoning may result from inhalation of dust or fumes. The central nervous system is the chief site of injury, but there may also be adverse blood and kidney effects. Chronic manganese poisoning is not a fatal disease although it is extremely disabling. Some individuals may be hyper-susceptible to manganese. Freshly formed manganese fumes has caused fever and chills similar to metal fume fever.

Molybdenum — This metal can be toxic via interperitoneal and subcutaneous routes. Care should be taken to avoid inhalation of large amounts of dust or fume. Molybdenum is generally considered to exhibit a low order of toxicity.

Nickel — The most common ailment arising from nickel or its compounds is an allergic dermatitis known as 'nickel-itch', which usually occurs when the skin is moist. Generally, nickel and most salts of nickel do not cause systemic poisoning, but nickel has been identified as a suspected carcinogen. There can also be adverse effects to the lungs and nasal cavities.

Phosphorus — The dusts and fumes can act as minor irritants to the eyes, throat, and respiratory tract. Long-term excessive inhalation of phosphorus compounds may lead to cough, bronchitis and pneumonia.

Silicon — Accumulation of silicon in the lungs may be responsible for benign pneumoconiosis, but is not considered to be responsible for pulmonary functional impairment or respiratory symptoms.

Silver — Chronic occupational exposure to silver results in argyria, a permanent pigmentation, (gray to purple) of the skin and eyes. Inhalation of silver may localize the argyria in the respiratory tract with chronic bronchitis as the only symptom.

Sulfur — In fumes may irritate: skin, eyes, lungs and gastrointestinl tract.

Tantalum — There are no reports of adverse health effects in industrially exposed workers. Massive doses of tantalum given by the intratracheal route to rats have produced respiratory tract lesions. In contact with tissue, metallic tantalum is inert. Tantalum pentoxide has an LD_{50} of >8 g/kg, orally in rats.

Tellurium — Inhalation of tellurium fume in quantities results in a metallic taste and garlic breath, gastrointestinal disease, dry-mouth and somnolence.

Tin — The inhalation of inorganic tin fumes or dust may cause an apparent benign pneumoconiosis called stannosis which is reported to be not disabling.

Titanium — Titanium is considered a physiologically inert dust. However, high concentration of oxides can cause mechanical irritation of eyes, nose and throat. Inhalation of titanium could cause mild irritation to the respiratory tract. Inhalation of titanium dioxide dust or fume could produce lung fibrosis and chronic bronchitis.

Tungsten — Inhalation of tungsten dust may cause irritation of the respiratory tract. Skin or eye contact could cause abrasion or irritation of the respective surfaces. No hazards have been identified for tungsten fume except that it may aggravate an existing chronic respiratory disease.

Yttrium Oxide — Short term inhalation in large amounts could cause discomfort, coughing and nasal discharge similar to the symptoms of a bad cold. Drying of the mucous membranes might be experienced. After intratracheal administration in rats, emphysema and diffused modular fibrosis in the lungs have been reported. The oral toxicity of this material is low as it is poorly absorbed from the gastrointestinal tract. Skin and eye contact should produce no problems other than mechanical irritation.

Zinc (as Oxide) — Zinc is very low in toxicity, but inhalation of fumes may cause metal fume fever. Onset of symptoms may be delayed 4-12 hours and include irritation of the nose, 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 bluish tint to the skin. These symptoms go away in 24 to 48 hours and leave no effect.

Note: *Antimony trioxide, beryllium, cadmium, chromium, cobalt-chromium alloy, lead and nickel have been identified as potential human carcinogens.*

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Emergency First Aid Procedures:

Eye Contact - Flush well with running water to remove particulate. Obtain medical attention.
Skin Contact - Vacuum-off excess dust. Wash well with soap and water.
Inhalation - Remove individual to place of fresh air. Obtain medical attention.
Ingestion - Seek medical attention if large quantities of materials have been ingested.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING OR USE

Steps to be Taken in Case Material is Released or Spilled: 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 heavy concentration of airborne dust. If liquids (acids or bases) containing solubilized metal are spilled, evacuate unprotected personnel from the area. Absorb liquid by use of vermiculite, dry sand or similar material. Follow federal, state and local regulations concerning the disposal of waste.
Waste Disposal Method: Dispose of waste in accordance with federal, state and local regulations. Clean-up personnel should wear respirators and protective clothing. Ventilate the area where the release occurred.
Precautions to be Taken in Handling and Storing: Store materials away from incompatible materials and keep dust from sources of ignition.
Other Precautions: See all other sections of this MSDS.

SECTION VIII. CONTROL MEASURES

Respiratory Protection: If exposure is above the PEL or TLV, use a NIOSH-approved respirator for fume or dust, dependent upon the source of airborne contaminant.
Ventilation: Ventilation is required if dust or fume is created in the handling of, or the working on of this material.
Local Exhaust: This is required if dust or fume is created in the handling of, or the working on of this material.
Mechanical (general): Control as above to reduce airborne dust or fume levels.
Protective Gloves: These gloves are required for melt, grind, cut or weld operations. Select a glove approved for the specific operation.

Eye Protection: Protection is required for melt, grind, cut or weld operations. There is a minimum requirement of safety glasses with side shields for these operations. Melting and welding may require special eye protection including face shields and specially tinted glass. Grinding operations may also require face shields.
Other Protective Clothing or Equipment: Other protection or equipment may be required depending upon the work being done on or with the material.
Work/Hygiene Practices: Observe practices required for work done with lead-bearing materials to meet requirements of the OSHA lead standard where necessary. Always evaluate the jobs done on this product in accordance with OSHA or relevant federal, state or local standards.

Note: Chemical analysis has not been performed by Vincent Metal Goods. Data supplied is furnished by various suppliers. For actual compositions, please refer to "Certified Material Test Report" or specific grade specification sheets.

The information contained in these alloy composition sheets should not be used for ordering or specification purposes. It is only intended to give general information for Material Data Sheets purposes.