

MATERIAL SAFETY DATA SHEET

Date: November 25, 1985
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800-328-7800



Vincent Metals

A Division of Rio Algom Inc.
P.O. Box 360
Minneapolis, MN 55440

SECTION I. MATERIAL IDENTIFICATION

Copper/Copper Alloys

See attached alloy composition sheets for alloy presence and percentages of alloying ingredients.

SECTION II. HAZARDOUS INGREDIENTS

Copper/Copper Alloys

	<u>CAS Number</u>		<u>OSHA-PEL</u> <u>8-hr TWA</u>	<u>ACGIH-TLV</u> <u>8-HR TWA</u> <u>(1988-89)</u>	<u>ACGIH</u> <u>STEL</u> <u>(1988-89)</u>
Aluminum #	(7429-90-5)	(Dust)	15 mg/m ³	10 mg/m ³	-
		(Fume)	5 mg/m ³	5 mg/m ³	-
Antimony #	(7440-36-0)		0.5 mg/m ³	0.5 mg/m ³	-
Arsenic #	(7440-38-2)		0.5 mg/m ³	0.02 mg/m ³	-
Beryllium #	(7440-41-7)		0.002 mg/m ³	0.002 mg/m ³	0.005*
Cadmium #	(7440-43-9)	(Dust)	0.2 mg/m ³	0.05 mg/m ³	-
		(Fume)	0.1 mg/m ³	0.05 mg/m ³ *	-
Carbonblack	(1333-86-4)		3.5 mg/m ³	-	-
Chromium #	(7440-47-3)		1 mg/m ³	0.5 mg/m ³	-
Cobalt #	(7440-48-4)		0.05 mg/m ³	0.1 mg/m ³	-
Copper #	(7440-50-8)	(Dust)	1 mg/m ³	1 mg/m ³	-
		(Fume)	0.1 mg/m ³	0.2 mg/m ³	-
Iron	(1309-37-1)		10 mg/m ³	5 mg/m ³	-
				(As iron oxide fume)	-
Lead # ③	(7439-92-1)		0.05 mg/m ³	0.15 mg/m ³	-
Manganese #	(7439-96-5)	(Dust)	5 mg/m ³	5 mg/m ³	-
		(Fume)	-	1 mg/m ³	3 mg/m ³
Nickel #	(7440-02-0)		1 mg/m ³	1 mg/m ³	-
Phosphorus #	(7723-14-0)		0.1 mg/m ³	0.1 mg/m ³	-
Silicon	(7440-21-3)	(Dust)	10 mg/m ³	10 mg/m ³ ②	-
		(Fume)	5 mg/m ³	-	-
Silver #	(7440-22-4)		0.01 mg/m ³	0.1 mg/m ³	-
Sulphur Dioxide #	(7446-09-5)		5 mg/m ³	5 mg/m ³	5/10 mg/m ³
Tellurium #	(13494-80-9)		0.1 mg/m ³	0.1 mg/m ³	-
Tin ②	(7440-31-5)		2 mg/m ³	2 mg/m ³	0.2 mg/m ³ (contemplated)
Zinc #	(1314-13-2)	(Dust) ①	10 mg/m ³	10 mg/m ³	-
		(Fume)	5 mg/m ³	5 mg/m ³	10 mg/m ³
Zirconium	(7440-67-7)		5 mg/m ³	5 mg/m ³	10 mg/m ³

* Ceiling Limit

Note: antimony trioxide, beryllium, cadmium, chromium, 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 the S.A.R.A. of 1986 and CFR Part 372.

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

② Contemplated change to 0.2 STEL and 0.1 TWA.

③ Under court remand.

Section 8 - Environmental

Waste Disposal Method

Used or unused product should be tested to determine hazard status and disposal requirements under federal, state, or local laws and regulations.

Disclaimer

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, express or implied regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

This document has been prepared solely for the intent of compliance with the provisions of Subpart 2 of Part 1910 of Title 29 of the Code of Federal Regulations, paragraph 1910.1200.

Footnotes:

- (1) Concentrations may vary somewhat between batches or lots. Where possible, a concentration range is indicated. Occasionally, however, levels may even fall outside of the usual concentration ranges.
- (2) Common names, if applicable, appear in parentheses following the chemical names.
- (3) All values, unless otherwise specified, refer to 8-hour time-weighted average concentrations and units are in mg/M³.



STAINLESS STEEL

ALLOY % COMPOSITION

SAFETY DATA

MATERIA

ALLOY	ALUMINUM	ARSENIC	BERYLLIUM	CARBON	CHROMIUM	COBALT	COLUMBIUM	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	NITROGEN	PHOSPHORUS	SILICON	SULPHUR	TANTALUM	TELLURIUM	TIN	TITANIUM	NC
15-SPH				.07	15.5			4.5				1.		5.5		.04	1.	.03	.45				
17-APH				.07	17.5			5.00				1.		5.		.06	1.	.03	.45				
201				.15	18.							6.		8.	.25	.045	1.	.03					
301				.15	18.							2.		10.		.045	1.	.03					
302				.15	19.							2.	.6	10.		.2	1.	.15					
303				.15	19.							2.		10.5		.045	1.	.03					
304				.08	20.							2.		13.		.045	1.	.03					
305				.12	19.							2.		12.		.045	1.	.03					
308				.08	21.							2.		15.		.045	1.	.03					
309				.2	24.							2.		22.		.045	1.5	.03					
310				.25	26.							2.		14.		.045	1.	.03					
316				.08	18.							2.	3.	12.		.045	1.	.03	.8			.4	
321				.08	19.							2.		13.		.045	1.	.03					
347				.08	19.							1.				.04	1.	.03					
405				.08	14.5							1.				.045	1.	.045				.75	
408				.08	11.75							1.				.04	1.	.03					
410				.15	13.5							1.				.04	1.	.03					
414				.15	13.5							1.	.6	2.5		.06	1.	.15					
416				.15	14.							1.				.04	1.	.03					
420				.15	14.							1.				.04	1.	.03					
430				.12	18.							1.				.04	1.	.03					
431				.2	17.							1.	.75	2.5		.04	1.	.03					
440C				1.2	18.							1.				.04	1.	.03					
448				.2	27.							1.5			.25	.04	1.	.03					

MATERIAL ALLOY	ALLOY % COMPC										ION - CARBON STEEL													
	ALUMINUM	ARSENIC	BERYLLIUM	CARBON	CHROMIUM	COBALT	COLUMBIUM	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	NITROGEN	PHOSPHORUS	SILICON	SULPHUR	TANTALUM	TELLURIUM	TIN	TITANIUM	ZINC	
1008				.1								.4												
1018				.17				99				.7												
1020				.2				99				.45												
1022				.2				96				.85												
1026				.25				98				.75												
1029				.28				98				.75												
1030				.3				98				.75												
1035				.35				98				.75												
1040				.38				98				.75												
1042				.44				98				.75												
1045				.45				98				.75												
1045				.5				98				.75												
1050				.6				98				.75												
1060				.7				98				.75												
1070				.17				98				1.15						.1						
1117				.35				98				1.5					.1							
1137				.4				98				1.5					.28							
1141				.44				97				1.5					.28							
1144				.44				98				.85					.3							
1213				.1				98				.9					.06							
1215				.08				98				.9					.06							
1215				.25				98				1.5					.3							
A108				.4				98				1.5					.3							
1541				.12				98				1.5					.3							
12L14				.3				97				.5					.2							
4130				.4				97				.85					.2							
4140				.42				97				.85					.2							
4142				.45				97				.85					.2							
4145				.47				97				.85					.2							
4147				.5				97				.85					.2							
4150				.2				96				.5					.25							
4320				.4				95				.7					.25							
4340				.15				95				.5					.25							
4815				.17				95				.5					.25							
4817				.2				95				.6					.25							
4820				.5				97				.8					.25							
5150				.6				97				.8					.2							
5160				.2				97				.8					.2							
8620				.2				97				.5					.2							
C-75				.38				98				.75					.2							
J-55				.38				98				.75					.2							
K-55				.4				97				.85					.2							
L-80				.4				97				.85					.2							
N-80				.4				97				.85					.2							
P-110				.13				89				.45					.1							
9CH1M0				.03				18				.3					.3							
718				.15				2				.6					.52							
400				.2				31				.8					.65							
K500				.2				28				.8					.65							
514				.2				98				.8					.25							
A588				.12				6				.8					.35							
H-11				.4				97				.8					.25							
Stress Proof				.44				92				.8					.9							
4330				.33				97				.7					.28							
52100				.1				95				.7					.2							
52100				.1				97				.3					.2							

IMPORTANT

LIABILITY DISCLAIMER

The Information contained in this Material Safety Data Sheet (MSDS) is believed to be correct as it was obtained from sources we believe are reliable, including: "Threshold Limit Values & Biological Exposure Indices for 1988-89" (American Conference of Government & Industrial Hygienists), Air Contaminants-Permissible Exposure Limits (Title 29, Code of Federal Regulations, part 1910.1000-OSHA), and OSHA (Cleveland Area Office) letter of 6/15/89. However, no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material, or the results to be obtained from the use thereof. User assumes all risks and liability of any use, processing or handling of any material, variations in methods, conditions and equipment used to store, handle or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at his sole discretion.

Compliance with all applicable federal, state, and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe work place, to examine all aspects of its operation and to determine if or where precautions, in addition to those described herein, are required.

Note: Chemical analysis has not been performed by Vincent Metals. 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.

CAMDEN WIRE CO., INC.

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MATERIAL SAFETY DATA SHEET

SECTION 1: GENERAL INFORMATION							
DATE OF PREPARATION: November 9, 1998	HMIS HAZARD RATING: 0=INSIGNIFICANT 1=SLIGHT 2=MODERATE 3=HIGH 4=EXTREME						
MSDS NUMBER: 101							
EMERGENCY PHONE NO.: (315)245-3800							
PRODUCT NAME: BARE COPPER WIRE (SINGLE & MULTIPLE STRAND CONSTRUCTION)							
	<table border="1"> <tr> <td>HEALTH</td> <td>1</td> </tr> <tr> <td>FLAMMABILITY</td> <td>0</td> </tr> <tr> <td>REACTIVITY</td> <td>0</td> </tr> </table>	HEALTH	1	FLAMMABILITY	0	REACTIVITY	0
HEALTH	1						
FLAMMABILITY	0						
REACTIVITY	0						

SECTION 2: HAZARDOUS INGREDIENTS					
COMPONENTS - Chemical & Common Names Hazardous > 1%; Carcinogens > 0.1%	CAS NUMBER	%	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED
Copper - Fume - Dust	7440-50-8	100	0.1mg/m3 1.0mg/m3	0.2mg/m3 1.0mg/m3	2.0 mg/m3
Non-Hazardous Components TOTAL		100			

SECTION 3: PHYSICAL PROPERTIES	
BOILING POINT: 2595C	SPECIFIC GRAVITY: 8.92
VAPOR PRESSURE: 1mm Hg @ 887 C	MELTING POINT: 1083 C
VAPOR DENSITY: N.A.	EVAPORATION RATE: N.A.
SOLUBILITY IN WATER: Insoluble	APPEARANCE AND ODOR: Metal with reddish color and no odor
WATER REACTIVE: Unreactive	

SECTION 4: FIRE & EXPLOSION HAZARD DATA	
FLASH POINT: N.A.	AUTO IGNITION TEMPERATURE: N.A.
LOWER EXPLOSIVE LIMIT: N.A.	UPPER EXPLOSIVE LIMIT: N.A.

EXTINGUISHER MEDIA; Powdered Dolomite, Sodium Chloride, or Graphite.

SPECIAL FIRE FIGHTING PROCEDURES: Fine copper powder is a moderate fire hazard. For copper fires do not use water.

UNUSUAL FIRE AND EXPLOSIVE HAZARDS: Copper reacts violently with C₂H₂, NH₄NO₃, Bromates, Chlorates, Iodates, Cl₂, ClF₂, Ethylene Oxide, F₂, H₂O₂, Hydrazine mononitrate, Hydrazoic acid, H₂S, K₂O₂, NaN₃, Na₂O₂, CuNO₃, S.

SECTION 3: REACTIVITY HAZARD DATA

STABILITY: Stable.
INCOMPATIBLE MATERIALS: 1-Bromo 2-propyne (see section 4).
HAZARDOUS DECOMPOSITION PRODUCTS: Toxic metal fumes.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: N.A.

SECTION 4: HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY:
SKIN INHALATION INGESTION NOT HAZARDOUS

CARCINOGEN LISTED IN:
NTF IARC MONOGRAPH OSHA X NOT LISTED

HEALTH HAZARDS:
ACUTE: Metal fume fever.
CHRONIC: No long term effects reported
SYMPTOMS OF EXPOSURE: Chills, fever, aching muscles, dry mouth & throat, headache, nausea, vomiting and diarrhea.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Wilson's disease

EMERGENCY FIRST AID PROCEDURES: Seek medical attention for further treatment

EYE CONTACT: Remove metal fragments and flush eyes with fresh water.
SKIN CONTACT: Remove contaminated clothing. Flush skin with copious amounts of water.
INHALATION: Remove to fresh air. If breathing has stopped administer CPR.
INGESTION: May be moderately irritating to stomach lining. Induce vomiting if conscious.

SECTION 5: CONTROL AND PROTECTIVE MEASURES

RESPIRATORY PROTECTION: NIOSH/MSHA approved respirator when toxic dust and/or fumes are present

PROTECTIVE GLOVES: None required.

EYE PROTECTION: Safety glasses require when working with metal products.

VENTILATION TO BE USED: X YES NO

TYPE USED: Local ventilation.

OTHER PROTECTIVE EQUIPMENT: None required.

HYGIENIC WORK PRACTICES: Practice good housekeeping and personal hygiene procedures.

SECTION 6: PRECAUTIONS FOR SAFE HANDLING AND DISPOSAL

CLEANUP OF SPILLED MATERIAL: Clean up using method which minimizes copper dust generation.

WASTE DISPOSAL METHODS: Recycle scrap material in accordance with all local, state and federal regs..

HANDLING AND STORAGE PRECAUTIONS: Avoid storage near incompatible material (see sec.5). Also avoid conditions which will cause the generation of copper dust.

OTHER PRECAUTIONS OR SPECIAL HAZARDS: Wash exposed skin after handling

PREPARED BY: ROBERT J. BRATEK DEPARTMENT: ENGINEERING
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INFORMATION CONTAINED IN THIS DOCUMENT.