Material Safety Data Sheet

Copper Alloys

SECTION 1 - Product Identification

Distributor: Winsert, Inc. **Emergency Telephone:** 715-732-1703
Address: 2645 Industrial Parkway South
P.O. Box 198
Marinette, Wisconsin 54143
Chemical Name and Synonyms: Copper Based Alloys
Chemical Family: Metals
Formula: Not Applicable

SECTION 2 - Product Description and Hazardous Ingredients/Identity Information

Copper Based Valve Seat Inserts and Other Products. See Tables on Pages 2 and 3 for Listing of Hazardous Ingredients.

SECTION 3 - Physical Data

Melting Point F (C): Greater Than 2200 (1204) **Specific Gravity:** Greater Than 7
Vapor Pressure: Not Applicable **%Volatile by Volume:** Not Applicable
Vapor Density (Air=1): Not Applicable **Evaporation Rate:** Not Applicable
Solubility in Water: Negligible
Appearance and Color: Copper to grayish-copper odorless ingot or casting

SECTION 4 - Fire and Explosion Hazard Data

Flash Point F (C): Not Applicable **Flammable Limits:** Not Applicable
Extinguishing Media: Dry Chemical or other methods appropriate to material and surrounding areas.

Unusual Fire and Explosion Hazards: None

Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against degradation products and fire fighting technique or agent(s) applicable to material and surrounding areas.

Hazardous Ingredients/Identity Information

Table 2-1
Copper Alloys - Weight Percent Composition

Alloy	Silicon 7740-21-3	Molybdenum 7439-98-7	Chromium 7740-47-3*	Iron 7439-89-6	Nickel 7740-02-2*	Cobalt 7440-48-4*	Titanium 7440-32-6	Phosphorous 7723-14-0	Copper 7440-50-8
CuT75	1.00-1.50	10.50-16.00	0.80-1.80	0.60 max	7.00 - 12.00	--	0.20-0.45	0.30 max	Balance
CuT99	1.00-1.50	10.00-15.00	0.50-2.00	0.60 max	8.00-13.00	--	0.50 max	0.30 max	Balance
CuT102	0.40-1.20	1.00 max	0.20-1.50	0.60 max	3.00 - 8.00	--	--	0.30 max	Balance

Table 2-2
Copper Alloys - Exposure Limits and Carcinogenicity Data
(Values are time-weighted averages, unless otherwise noted)

Contaminant & Exposure Limits	Silicon	Molybdenum (as Mo dust or soluble/ insol. compounds	Chromium (as Cr metal)	Iron (as Fe or Iron Oxide, particulate or fume)	Nickel (as Ni metal)	Cobalt (as Co metal, dust or fume)	Titanium	*Phosphorous (metal, dust or fume)	Copper (as dust)
OSHA Permissible Exposure Limit (PEL) mg/m3	10 - Total Dust 5 - Resp. Fraction	15 - Total Dust 5 - Soluble 10 - Insoluble	1	10	1 (0.015 - NIOSH recommended exposure limit)	0.05	15.0 (as TiO2)	0.1	1.0 Total Dust
ACGIH Threshold Limit Value (TLV) mg/m3	10	5 - Soluble 10 - Insoluble	0.5	5	1	0.10	10.0 (as TiO2)	0.1	1.0
Carcino-genicity									
NTP	No	No	Yes	No	Yes	No	No	No	No
IARC	No	No	Yes	No	Yes	No	No	No	No
OSHA Z List	No	No	No	No	No	No	No	No	No
OSHA Reg.	No	No	No	No	No	No	No	No	No

SECTION 5 - Health Hazard Data

Applicable Statutory or Recommended Occupational Limits: Winsert alloys, as distributed, do not present an inhalation, ingestion, or contact hazard. However, operations such as melting, welding, sawing, brazing, and grinding may result in the following effects if exposures exceed limits as listed in Table 2-2 of the individual constituents.

Effects of Overexposure:

Acute - Dust or fume may cause irritation to the eyes, nose, or throat; leave a metallic taste in the mouth; result in metal fume fever; or produce flu-like symptoms.

Chronic	Manganese	-Lung, liver, kidney & central nervous system damage; weakness, loss of coordination, shortness of breath
	Molybdenum	-Liver, kidney, spleen & blood damage; diarrhea, bone deformation, growth retardation
	Chromium	-Skin, nasal, & lung damage; physical irritation, cancer, possible mutations
	Vanadium	-Lung damage; physical irritation
	Tungsten	-Lung damage; hard metal disease with wheezing, coughing, shortness of breath
	Cobalt	-Blood, heart, bone marrow, thyroid, liver, lung & pancreatic damage; skin rash, itching, asthma attacks
	Nickel	-Skin, nasal, heart, liver, kidney & lung damage; physical irritation, cancer, possible mutations
	Iron	-Lung damage
	Copper	-Physical irritation

Note: Repeated long-term overexposure may aggravate existing allergies, and lung, kidney, etc. disorders.

Usual Route of Entry: Inhalation, skin and eye contact

Emergency First Aid Procedures: In event of acute exposure, remove to fresh air, administer oxygen, and seek medical attention.

SECTION 6 - Reactivity Data

Stability: Considered Stable

Incompatibility: Not Incompatible with Materials

Hazardous Polymerization: Not Applicable

Hazardous Decomposition Products: Not Applicable

Conditions to Avoid: May liberate metal fumes, metal oxides, or other oxides if exposed to elevated temperatures.

SECTION 7 - Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled: Not Applicable

Waste Disposal: This material may be reclaimed for reuse or recycling.

SECTION 8 - Special Protection Information

If operations are such that atmospheric levels of contaminants exceed prescribed limits, provide local exhaust ventilation and/or adequate respiratory protection. Consult your regional codes or Code of Federal Regulations, Title 29, Part 1910.252, Welding Cutting, and Brazing; 1910.134, Respiratory Protection; 1910-Subpart Z, Toxic and Hazardous Substances; and/or 1910.1000 Air Contaminants.

SECTION 9 - Superfund Amendments and Reauthorization Act of 1986 (SARA/Title III, Section 313)

The chemicals identified by (*) in Table 2-2 denote a chemical subject to reporting requirements of Section 313 of SARA/Title III, and 40 CFR Part 372. This information should be included in all MSDSs that are copied and distributed for this material.

SECTION 10 - California Proposition 65

One or more of the alloys listed on this MSDS contains a material known to the State of California to cause cancer or reproductive toxicity. These are:

Material	Listed Effect
Nickel	Cancer
Chromium	Cancer