

I. MATERIAL IDENTIFICATION

Manufacturer's Name: Ampco Metal
Address: 1745 So. 38th Street, P.O. Box 2004
Milwaukee, WI 53201
Telephone Number: (414) 645-3750
Material Name: Cobalt Base Alloy Castings and Materials

II. HAZARDOUS INGREDIENTS

	<u>CAS Number</u>	<u>%</u>	<u>OSHA</u> <u>8-hr TWA</u>	<u>ACGIH</u> <u>8-hr TWA</u>
Chromium	7440-47-3	20-30	1 mg/m ³	0.5 mg/m ³
Cobalt	7440-48-4	50-90	0.1 mg/m ³	0.1 mg/m ³
Iron	1309-37-1	0 -2	10 mg/m ³ as oxide fume	5 mg/m ³ as oxide fume
Nickel	7440-02-0	0-5	1 mg/m ³	1 mg/m ³
Silicon	7440-21-3	0-3	None	Total--10 mg/m ³
Tungsten	7440-33-7	10-15	None	5 mg/m ³

III. PHYSICAL DATA

Melting Point (F): Not Applicable Specific Gravity: Not Applicable
Vapor Pressure: NA Vapor Density: NA
% Volatile by Volume: NA Evaporation Rate: NA
Solubility in Water: Insoluble
Appearance and Odor: Silver/grey color with no odor

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: NA Method Used: NA
Flammable Limits: LEL = NA UEL = NA
Extinguishing Media: See Below

Special Fire Fighting Procedures: Solid, massive form is not combustible under normal conditions. Use fire fighting methods that are appropriate for surrounding fire.
Small chips, fine turnings, and dust may ignite readily. Use coarse water spray on chips, turnings, etc. Use class D extinguishing agents or dry sand on fines. PREVENT FORMATION OF A DUST CLOUD.
Molten metal alloys may explode on contact with water. They may also react violently with water, rust, and certain metal oxides (e.g. oxides of copper, iron and lead).
Firefighters should wear self contained breathing apparatus and protective clothing.

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V. HEALTH HAZARD DATA

Permissible Exposure Limits and Threshold Limit Values: See Section II

Route(s) of Entry:

Inhalation: Yes

Skin: Yes

Ingestion: Yes

Effects of Overexposure:

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.

Nickel

The most common ailment associated arising from contact with 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. IARC has determined that there is at least limited evidence that nickel and certain nickel compounds may be human carcinogens. Several nickel compounds are carcinogenic to laboratory animals by various routes of entry.

Chromium

In some workers, chromium compounds act as allergens and may cause dermatitis and may also produce pulmonary sensitization. Chromic 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 possible chromium alloy workers. This determination is supported by sufficient evidence for carcinogenicity to animals and possible mutagenicity testing of Cr VI compounds.

Iron

The inhalation of iron oxide fumes may cause an apparent benign pneumoconiosis which is called siderosis. This disease is reported not to be disabling, but makes x-ray determination of other lung conditions difficult or impossible.

Tungsten

Insoluble tungsten is reported to be associated with low toxicity, but exposure to high levels may result in lung accumulation.

Emergency and First Aid Procedures:

Eye Contact: Flush well with running water to remove particulate. Get medical attention.

Skin Contact: Vacuum off excess dust. Wash well with soap and water. Avoid blowing particulate into the atmosphere.

Inhalation: Remove to fresh air. Get medical attention.

Ingestion: Seek medical attention if large quantities of material have been ingested.

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VI. REACTIVITY DATA

Stability: Stable under normal conditions of use, storage, and transportation.

Conditions to Avoid: Molten metal may react violently with water. Avoid contact of finely divided material with heat, oxidizers, acids, and alkalis.

Hazardous Decomposition or Byproducts: Metal fume.

Hazardous Polymerization: Will Not Occur

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 concentrations of airborne dust. Follow federal, state, and local regulations concerning the disposal of waste.

Waste Disposal Method: Dispose of in accordance with federal, state, and local regulations. Cleanup personnel should wear respirators and protective clothing.

Precautions to be Taken in Handling and Storing: Store material away from incompatible materials and keep dust from sources of ignition.

Other Precautions: See all other sections of this MSDS.

VIII. CONTROL MEASURES

Respiratory Protection: If exposure above the PEL or TLV, NIOSH approved respirator for fume or dust, dependent upon the source of airborne contaminant.

Ventilation: Required if excessive levels of dust or fume created in handling or working on this material.

Local Exhaust: Required if excessive levels of dust or fume created in handling or working on this material.

Mechanical (general): As above to reduce airborne dust or fume levels.

Protective gloves: Required for melt, grind, cut or welding operations. Select glove approved for the specific operation.

Eye Protection: Required for melt, grind, cut or welding operations. 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 and/or welder's helmet. Grinding operations may require face shields.

Other Protective Clothing or Equipment: Use leather or equal protective gloves and body clothing while welding. As required for the operations done on the casting.

Work/Hygiene Practices: Use ear muffs or plugs if noise level is above 90 dBA. Always evaluate the jobs done on this casting in accordance with OSHA or relevant state, federal, or local standards.

Use precautions in lifting and prevent dropping.