CORROSION MATERIALS

MATERIAL SAFETY DATA SHEET

SECTION I - MATERIAL IDENTITY

NICKEL BASED ALLOYS - B-2, B-3, C-276, C-22, G-30, 200/201, 400, K-500, 600, 800H, 686, ALLOY 20
NOTE: Under normal conditions these products DO NOT present an inhalation, ingestion, or contact hazard.

This MSDS applies to all forms of the above listed alloys manufactured by various mills and supplied by Corrosion Materials. For Manufacturer and specific percentages for each element, please reference the Mill Test Certificate supplied with your shipment. MSDS prepared 14 March 2001. Revised 11 March 2009.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT		%	PEL MG/M3	TLV MG/M3	NOTES
NICKEL	7440-02-0	32-100	1.0	1.0	
CHROMIUM	7440-47-3	0-30	1.0	0.5	
MOLYBDENUM	7439-98-7	2-28	10.0	10.0	INSOLUBLE COMPOUNDS
IRON	1309-37-1	0-20	10.0	5.0	AS IRON OXIDE
TUNGSTEN	7440-33-7	0-3	5.0	5.0	INSOLUBLE COMPOUNDS
COBALT	7440-48-4	0-30	0.05	0.05	
COPPER	7440-50-8	0-32	0.1 / 1.0	0.2 / 1.0	FUME / DUST/MIST
COLUMBIUM(Nb)	7440-03-1	<2.0	15	10	DUST
MANGANESE	7439-96-5	0-5	5	0.2	DUST
SILICON	7440-21-3	0-5	15	10	DUST
TITANIUM	7440-32-6	0-2	15	10	TiO2 dust

SECTION III - PHYSICAL DATA

BOILING POINT: N/A
VAPOR PRESSURE: N/A
VAPOR DENSITY: N/A
SOLUBILITY IN WATER: INSOLUBLE
EVAPORATION RATE: N/A

APPEARANCE AND ODOR: ODORLESS SOLID METAL
SPECIFIC GRAVITY (H20 = 1): 7.4 TO 8.7
MELTING POINT: 2300 - 2800 F

SECTION IV - FIRE AND EXPLOSION HAZARD

NONE - MATERIAL IS A SOLID METAL

SECTION V - HEALTH HAZARD DATA

Nickel based alloys in their usual physical form do not pose any health hazards. However, during operations including welding, cutting, sawing, brazing, grinding etc. potentially hazardous fumes or dust may be generated. Since the primary route of exposure is from the inhalation of fumes and dusts, the above operations should be performed in a well ventilated area.

HEALTH HAZARDS:
ACUTE: Long term inhalation of metallic fumes and dusts may be irritating to respiratory passages and can produce a reaction known as "metal fume fever". Symptoms consist of chills and fever (very similar to the flu) a metallic taste in the mouth, and dryness and irritation of the throat. Symptom onset is usually within a few hours of excessive exposure and usually last 12 to 48 hours. No long term effects from metal fume fever have been observed. Iron oxide, Copper, and Manganese can cause metal fume fever.

SECTION V - HEALTH HAZARD DATA (CONTINUED)

INHALATION OF HIGH CONCENTRATIONS OF METALLIC FUMES AND DUSTS MAY CAUSE THE FOLLOWING **CHRONIC CONDITIONS:**

CHROMIUM: Depends on oxidation state. The metal form is considered non-toxic. Hexavalent chromium in welding. fumes are water soluble, toxic, and carcinogenic. Exposure to fumes may cause skin and Respiratory tract ulceration, dermatitis, allergic skin reactions, irritation of the pharynx and larynx, asthmatic bronchitis, eye irritation or inflammation.

COBALT: Inhaling cobalt metal fumes and dust causes irritation of the nose and throat and may result in an asthma-like disease with symptoms ranging from cough, chronic bronchitis, shortness of breath and labored breathing, to decreased pulmonary function, nodular scarring of the lung tissue, permanent disability and death. Cobalt exposure may cause weight lose, dermatitis, and Respiratory hypersensitivity.

COLUMBIUM (NlOBlUM): Is an eye and skin irritant and may cause Kidney damage

COPPER: Exposure to copper fumes, dusts and/or mists results in metal fume fever, nausea, irritation of upper respiratory tract, and irritation of nasal mucous membranes.

IRON: Inhalation of excessive concentrations of Iron oxide fumes generated during arc welding or dusts may result in development of a benign pneumoconiosis called siderosis.

MANGANESE: Long term exposure to high concentrations of manganese fumes and dusts may increase the risk of pneumonia and lung damage and may lead to central nervous system effects that may include sleepiness, weakness, emotional disturbances, headaches, and changes in motor activity.

MOLYBDENUM: Dust causes irritation to the lungs and eyes, difficulty breathing, general weakness dizziness, chest pain, fatigue, headache, and joint and muscle pain.

NICKEL: Fumes are a respiratory irritant and have caused asthma, pneumonia, pulmonary edema and pulmonary fibrosis in welders using nickel alloys. Airborne nickel dusts are capable of producing lung cancer. Skin contact may cause an allergic rash.

SILICON: Repeated overexposure may cause chronic respiratory effects.

TITANIUM: Titanium dioxide fumes and dust are a mild Pulmonary, eye and skin Irritant.

TUNGSTEN: Chronic exposure to tungsten dust has caused dermatitis and pulmonary fibrosis characterized by cough, labored breathing, and wheezing.

CARCINOGENICITY: Chromium, Cobalt, and Nickel have been identified by the International Agency For Research on Cancer, the National Toxicology Program, or by OSHA as potential cancer causing agents.

SECTION VI - REACTIVITY

STABILITY: chemically stable

INCOMPATIBLE MATERIALS: reacts with strong acids forming Hydrogen gas

HAZARDOUS DECOMPOSITION PRODUCTS: metallic oxides, dust, fumes

HAZARDOUS POLYMERIZATION: will not occur

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: NA

WASTE DISPOSAL METHOD: Recycle metal chips or solid pieces and grinding dust, etc. - according to Federal, State, and Local disposal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Maintain good housekeeping practices to reduce the accumulation of dust and to minimize airborne dust concentrations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

VENTILATION: use a general or local exhaust system to keep airborne concentration of dust and fumes below the TLV.

RESPIRATORY PROTECTION: if in processing, fumes or dust are released in concentrations that exceed permissible limits, provide NIOSH approved respirators. (reference 29CFR 1910.134)

GLOVES: may be necessary to prevent skin sensitization and dermatitis.

EYE PROTECTION: safety glasses or goggles should be worn when grinding or cutting.

SECTION IX - SARA TITLE III REQUIREMENTS

The following chemicals contained in these products are subject to reporting as required by Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 372:

Chromium 7440-47-3 Cobalt 7440-48-4 Copper 7440-50-8 Manganese 7439-96-5 Nickel 7440-02-0

Please note that if you repackage or otherwise redistribute these products to industrial customers, a notice similar to this one must be sent to those customers.

DISCLAIMER

The information contained in this Material Safety Data Sheet was obtained from reliable sources and is believed to be accurate, however, it is provided without any express or implied warranty.