MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ***COOL COAT MIG & TIG***

Product Code: 10084 10085 10086 10184 10185 10186 10285 10482 10483 10484 10582 10583 10584

Manufactured For: **Freedom Alloys**
Address: **P.O. Box 1478**
Cypress, TX 77410-1478
Phone Number: **(281) 807-0757**
MSDS Date: 01/06/98

EMERGENCY TELEPHONE NUMBER(S):
CHEM-TEL, INC. (800) 255-3924 24-Hour Emergency Response

Classification: AWS A5.0/ASME SFA5.9 Section III, Bare Stainless Steel Welding Electrodes and Rods.
AWA A5.14/ASME SFA5.14, Section III, Nickel and Nickel Alloy Bare Welding Electrodes and Rods.

Product Type: Cr-Ni and Ni Bare Welding Electrodes and Rods for manual, semi-automatic and automatic welding.

SECTION 2 – HAZARDOUS INGREDIENTS INFORMATION:

Welding consumables covered by this MSDS are shipped as non-reactive, non-flammable, non-explosive, and essentially non-hazardous materials until they are used in welding. The information in this section covers the chemicals from which this product is manufactured. The fumes and gases which are produced as a by-product during normal use when welding with this product are discussed in Section V.

HAZARDOUS COMPONENTS[1]:

(Specific Chemical Identity: Common Name)	CAS Number	SARA[2]	OSHA PEL[3] (mg/m^3)	ACGIH TLV[4] (mg/m^3)	NOTES	PERCENT[5] By Weight
Chromium	7440-47-3	*	1	0.5		2-35
Copper	7440-50-8	*	0.1	0.2	Fume	0-4
Iron	7439-89-6		10	5	(Fe_2O_3)	Balance
Manganese	7439-96-5	*	5[6]	0.2		1-10
Molybdenum[7]	7439-98-7		15	10		1-16
Nickel	7440-02-0	*	1	1		0.1-65
Niobium[8]	7440-03-1		15	10	Total Dust	0.5-5
			5	3	Resp. Dust	
Silicon	7440-21-3		15	10	Total Dust	1-10
			5	NA[9]	Resp. Dust	
Welding Fumes (NOC)	N/A		N/A	5		

Notes:

1. The term "Hazardous" should be interpreted as defined and required in the OSHA Hazard Communication Standard (29 CFR 1910.1200) and does not necessarily imply the existence of any hazard. Any components at concentrations equal to or greater than 0.1 percent are listed in this section, according to OSHA 29 CFR 1910.1200.
2. An asterisk (*) after the Chemical Abstract Service (CAS) Number indicates a toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and 40 CFR Part 372.
3. These permissible exposure levels (PELS) are based on OSHA's rulemaking (29 CFR 1910 Subpart Z) adopted on May 29, 1971, and are the current regulatory limits.
4. These values are based on the American Conference of Governmental Industrial Hygienists (ACGIH) 1997 TLVs and BEIs.
5. Approximate percent by weight values.
6. Ceiling limit
7. Only in molybdenum – alloyed grades.
8. Only in niobium – alloyed grades.
9. NA = Not Applicable; Not Available.

SECTION 3 – PHYSICAL/CHEMICAL CHARACTERISTICS:

BOILING POINT:	NA	**SPECIFIC GRAVITY:**	NA
VAPOR PRESSURE (mmHg):	NA	**MELTING POINT:**	NA
VAPOR DENSITY (Air = 1):	NA	**EVAPORTAION RATE**	
pH:	NA	**(Butyl Acetate – 1):**	NA
SOLUBILITY IN WATER:	NA	**APPEARANCE AND ODOR:**	Solid, stainless steel sheath with an alloy and flux inner filler; odorless.

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT (Method used): **NA**
FLAMMABLE LIMITS: **LEL:** NA **UEL:** NA
EXTINGUISHING MEDIA; No special media required.
SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is no flammable, combustible or explosive. Welding arc and sparks can ignite combustibles and flammables. Use the extinguishing media recommenced for the burning materials and fire situation. Refer to ANSI A49.1 and NFPA 51B standards for additional fire prevention information for welding procedures.

SECTION 5 – REACTIVITY DATA:

STABILITY: **Stable: X** **Unstable:_____**
Conditions To Avoid: None Known.

INCOMPATIBILITY (Materials to Avoid): None known.

HAZARDOUS POLYMERIZATION: **May Occur:_____** **Will Not Occur: X**
Conditions to Avoid: None known.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Fumes and gases produced during the welding process cannot be simply classified. The composition and quantity of both are dependent upon the material being welding, and the process, procedures, and welding consumables being used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the material being welding (such as paint, plating, galvanizing, and phosphate coatings), the number of welders and welding operations and the volume of the work area, the quantity of welding consumables used, the design and amount of ventilation delivered, the position of the welder's head with respect to the fume plume, and the presence of

contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from solvent, cleaning, or painting activities which may decompose by the arc into toxic gases such as phosgene.

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Decomposition products from welding operations will include those originating from the volatilization, reaction, or oxidation of the ingredients listed in Section II plus those form the base metal and coatings, etc. noted above. Reasonably expected decomposition products from the normal use of this welding consumable include fluorides and complex oxides of the ingredients listed in Section II. Fumes from the use of this product contain chromium compounds, including hexavalent chromium (Cr VI); nickel; manganese; iron; copper; and zirconium compounds. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by radiation from the arc.

The employer is required by OSHA to limit the worker's level of exposure to chemicals for which OSHA has established a PEL in 29 CFR 1910 Subpart Z. The only way to determine a worker's exposure to welding decomposition products is by sampling and analyses using accepted industrial hygiene techniques. The composition and quantity of the fumes and gases to which a worker is exposed can be established from an air sample(s) obtained from inside the welder's helmet, if worn, or in the worker's breathing zone. Review ANSI/AWS F1.1 and F1.3 standards for further information on air sampling for welding decomposition products.

SECTION 6 – HEALTH HAZARD DATA:

Electric arc welding may create one or more of the following hazards:

- Fumes and gases can be dangerous to your health.
- Electric shock can kill you.
- Arc rays can injure the eyes and burn the skin. Noise can damage hearing.

ROUTE(S) OF ENTRY: **Inhalation: Yes** **Skin/Eye Contact: Yes** **Skin Absorption: Unlikely** **Ingestion: Unlikely**

HEALTH HAZARDS (Acute and Chronic):

Acute (Short-Term Effects): Short-term exposures to the fumes and gases generated by welding with this product may result in dizziness; nausea; and irritation of the eyes, lungs, nose and throat. Metal fume fever, a flu-like illness lasting about 24 hours with chills, aches, cough, and fever can be caused by overexposure to metal fumes, including chromium, copper, and manganese. Some toxic gases produced by welding may cause pulmonary edema, asphyxiation, and death.

Chronic (Long-Term Effects): Long-term exposures to the fumes and gases generated by welding with this product may lead to their accumulation in the lungs and may result in bronchial asthma, lung fibrosis, or pneumonoconiosis. The severity of this condition is proportional to the length of the exposure. Overexposure to iron oxide can cause siderosis (deposits of iron in the lungs) which may affect pulmonary function. Nickel and chromium compounds are considered carcinogenic. Chromium and nickel can cause lung cancers. Nickel also causes nasal cancers. Overexposure to chromium compounds may cause respiratory irritation with symptoms resembling asthma, and ulceration and perforation of the nasal septum. Long-term overexposure to nickel fumes can cause pulmonary fibrosis and edema. Chromium and nickel compounds can cause skin allergy upon contact. Overexposure to manganese can result in central nervous system effects referred to as manganism, including symptoms of muscular weakness and tremors similar to Parkinson's disease. Copper poisoning and liver damage can occur from overexposure to this metal. Anemia, jaundice, and central nervous system damage can also result.

CARCINOGENICITY: NPT: Yes* IARC: Yes* OSHA REGULATED: Yes* CAL.PROP. 65: Yes**

***** Chromium and nickel metals and compounds are listed in the National Toxicology Program (NTP) Annual Report on Carcinogens and the International Agency for Research on Cancer (IARC) Monographs and are also considered carcinogens by OSHA.

** **WARNING:** This product contains or produces chemicals known to the State of California and other states, if applicable, to cause cancer.

SIGNS AND SYMPTOMS OF EXPOSURE: Inhalation of fumes may cause irritation of the lungs, damage to the lungs and asthma-like symptoms. Overexposure to metals in fumes can cause metal-fume fever which is a flu-like sickness including chills, fever, head and muscle ache, tightness of chest, dryness of nose and mouth, nausea and vomiting. Symptoms occur within several

hours of exposure lasting 6-24 hours. Extreme overexposure can cause death. Chromium dust can burn eyes and form ulcers on skin. Absorption through the skin can affect kidney and liver function. Long-term exposure to fluorides can mottle teeth and erode bones. Manganese can produce behavioral changes and changes in hand writing.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Exposure to welding fumes may aggravate pre-existing respiratory of allergic conditions in some workers. Some studies have shown a higher level of lung related problems among older welders who smoked than those who did not smoke.

EMERGENCY AND FIRST AID PROCEDURES: Remove victim from exposure area and call for medical aid. Employ first aid techniques recommended by the American Red Cross.

Electrical shock: Turn off power. Remove from exposure area. Immediately call for medical assistance. Administer first aid.

Eyes: In case of arc burn or irritation, immediately call for medical assistance. In case of irritation from particulate/vapor, immediately flush with plenty of water for 15 minutes and call for medical assistance.

Skin: In case of arc burn or irritation apply cold compresses and immediately call for medical assistance. In case of skin contact causing irritation, wash thoroughly with plenty of soap and water.

Inhalation: If breathing is difficult, remove to fresh air and give oxygen. If breathing has stopped, provide artificial respiration.

Ingestion: Accidental ingestion unlikely. If ingested, call for medical assistance.

SECTION 7 – CONTROL MEASURES:

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1 Safety in Welding and Cutting, published by the American Welding Society, 550 N.W. LeJeune Road, Miami, Florida, 33126 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington D.C. 20402, for more details on many of the following:

VENTILATION: Use enough ventilation, local exhaust at the arc, or both to keep fumes and gases from the worker's breathing zone and the general area. Train welders to keep their heads out of the welding plume. If the fumes are removed by filtration or some other means and the air-gas stream is put back into the room, gases may build up to toxic or supplementary system and/or reduced by general ventilation.

Local Exhaust:	Provide at source of fumes.
Mechanical:	Use general mechanical ventilation to keep work area well vented.
Special:	Hoods if necessary.

RESPIRATORY PROTECTION (Specific Type): Use a NIOSH approved respirator for fumes or an air supplied respirator where local exhaust or general dilution ventilation does not keep exposures below the PEL or TLV for air contaminants. Lung function tests [Pulmonary function tests (PFT)] are recommended for respirator users.
Monitor the air quality inside the welder's helmet, if worn, and/or the worker's breathing zone to determine if a respirator is required and the type needed.

PROTECTIVE GLOVES: Wear protective gloves to prevent metal cuts and skin abrasions and to prevent injury from radiation sparks and electrical shock. A dry welder's glove is recommended.

EYE PROTECTION: Arcs produce ultraviolet and infrared radiation. Wear a welder's helmet or use a face shield with protective filter lenses. As a rule start with a lens shade that is too dark to see the weld zone. Then go to a lighter shade (a lower number shade) which gives sufficient view of the weld zone (e.g., Shade No. 14). Do not go below the minimum recommended in ANSI standard A49.1. Provide protective screens and flash goggles to shield others, if needed. Select welding lens shades from the American Welding Society (AWS) publication F2.2.

PROTECTIVE CLOTHING: Wear head and body protection to help prevent injury from radiation, sparks and electrical shock. Refer to ANSI Z49.1 for more information. At a minimum this includes hand protection and a protective face shield and may include arm protectors, aprons, hats, hard hats, and shoulder protectors as well as dark, substantial clothing.

OTHER PROTECTIVE EQUIPMENT: Protective clothing such as uniforms, disposable coveralls, safety shoes, etc. may be required during metal handling operations as appropriate to the circumstances of exposure.

ELECTRIC SHOCK: Welders should be trained to avoid electric shock by maintaining a dry work area, insulating themselves from the work piece and ground, and not touching live electrical parts.

WORK/HYGIENIC PRACTICES: Keep head out of fumes. Do not breathe the fumes and gases generated. Use adequate ventilation to control exposures. Do not touch live electrical parts. Wear protective equipment. Wear appropriate respiratory protection in confined spaces during welding and when the PEL/TLV may be exceeded. Do not eat, smoke, or drink in areas where welding is performed. Utilize good personal hygiene including washing hands and face prior to eating or drinking.

SECTION 8 – PRECAUTIONS FOR SAFE HANDLING AND USE:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: In solid form this material poses no special clean-up problems. Clean up spilled material with shovel or vacuum. If this material is in powder or dust form, clean-up should be conducted with a vacuum system utilizing a high efficiency particulate air filtration system. Caution should be taken to minimize airborne generation of powder or dust and avoid contamination of air and water. Place material in a suitable waste container and properly label all containers.

WASTE DISPOSAL METHOD: Dispose of product, residue, liners, containers and waste material in accordance with state or federal regulations.

OTHER PRECAUTIONS: Use good personal hygiene and safe work practices. Keep out of reach of children. Always read and follow directions on product label and other product information.

ENVIRONMENTAL HAZARDS: In solid form this material poses no special environmental problems. Metal powders or dusts may have significant impact on air and water quality. Airborne emissions, spills and releases to the environment (discharge to streams, sewer systems, ground water, surface soil, etc.) should be controlled immediately. If such potential for a spill or release exists, it is advisable to develop an emergency spill response plan.

SECTION 9 - CALIFORNIA PROPOSITION 65:

CALIFORNIA PROPOSITION 65: WARNING: This product contains or produces chemicals known to the State of California to cause cancer. (California Health and Safety Code §25249.5 ET SEQ.)

END OF MSDS