MATERIAL SAFETY DATA SHEET
PRODUCTS

CODE NO. 011-T 185

ORIGINAL ISSUE DATE: 1-7-86 REVISED: _____

I. IDENTIFICATION

INFORMATION & EMERGENCY TELEPHONE NUMBER
(313) 755-1900

PRODUCT NAME:

TITANIUM ALLOY (8 Al, 1 Mo, 1 V)

COMMON NAME:

TITANIUM 8-1-1

NEPA HAZARD RATING

4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

DISTRIBUTOR:

TITANIUM & ALLOYS CORP.
21870 Hoover Road
Warren, Michigan 48089

II. INGREDIENTS AND RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

NOTE: Products under normal conditions do not present an inhalation, ingestion or contact health hazard. However, operations, such as, burning, welding, sawing, brazing, grinding, and possibly machining, etc., which results in elevating the temperature of the product to or above its melting point or results in the generation of airborn particulates, may present health hazards.

BASE METAL, ALLOYING ELEMENTS	% WEIGHT	EXPOSURE LIMITS		HAZARD DATA
		OSHA PEL	ACGIH TLV	
TITANIUM	90%	20 mg/m^3	10 mg/m^3	See Section VI.
ALUMINUM	8	20 mg/m^3	10 mg/m^3	
MOLYBDENUM	1	20 mg/m^3	10 mg/m^3	
VANADIUM	1	NS	.5 mg/m^3	

NOTE: All commercial metals contain small amounts of various elements in addition to those that are specified. These small quantities, frequently referred to as "trace" or "residual" elements, generally originate in the raw materials, primarily scrap, utilized in the production.

III. PHYSICAL DATA

MELTING POINT: 1560 - 1840°C @ 1 atmosphere.

APPEARANCE AND ODOR: Gray metallic solid; no odor.

IV. FIRE AND EXPLOSION HAZARD DATA

This product does not burn. However, grinding or polishing this product in the absence of oxygen, such as under water, can result in a finely divided waste which is ignitable.

V. REACTIVITY DATA

This is a stable material at room temperature under normal storage and handling conditions.

VI. HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

MAJOR EXPOSURE HAZARD

- [X] INHALATION
- [ ] EYE CONTACT
- [ ] SKIN CONTACT
- [ ] INGESTION

TITANIUM: There is no evidence of a health hazard [illegible] inhalation of titanium dioxide in concentrations not exceeding 10 mg/m^3. The toxicity of titanium dioxide has been found to be relatively inert. Skin contact with titanium dusts may cause physical abrasion. Eye contact with pure material has shown particulate irritation. A NCI bioassay of titanium dioxide, administered in the diet of rats and mice, was reported to be negative (NCI-CC-TR-97, 1979). ALUMINUM: and MOLYBDENUM: Aluminum and Molybdenum dust/fines and fumes are a low health risk by inhalation, and should be treated as a nuisance dust (Ref. ACGIH). VANADIUM: Exposure to high concentrations of vanadium dust and fumes can cause respiratory irritation, skin pallor, greenish-black tongue, chest pain, cough, dyspnea, palpitration, lung changes.

EMERGENCY AND FIRST AID PROCEDURES:

For overexposure to airborne fumes and particulates generated during various milling operations, remove exposed person to fresh air. If breathing is difficult or has stopped, administer artificial respiration or oxygen as indicated. Seek medical attention promptly.

VII. SPILL OR LEAK PROCEDURES

N/A

VI[illegible] SPECIAL PROTECTION INFORMATION

RESPIRATORY: Respirator recommended for all grinding, cutting, etc. Consult local supplier for selection of appropriate NIOSH/MSHA approved respirator.

SKIN: Protective clothing and gloves may be required for certain handling operations.

EYE: Safety glasses should be worn.

VENTILATION: Adequate general and/or local exhaust ventilation should be provided as necessary.

OTHER PROTECTIVE EQUIPMENT: None Required.

X. SPECIAL PRECAUTIONS

If ignitable waste is generated, special precautions and firefighting procedures should be followed:

1.) Keep work area free of the waste.
2.) Store wet and keep away from heat and open flame - maintain humidity above 50% to prevent an electrostatic build-up.
3.) No smoking in area.
4.) Use non-sparking metal equipment.
5.) Extinguishing media: dry chemical powders, salts or inert gas. Do not use water or liquid: explosion hazard could result.