MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME:

I. PRODUCT IDENTIFICATION

LATROBE STEEL COMPANY
SUBSIDIARY OF THE TIMKEN COMPANY
LATROBE, PENNSYLVANIA 15650
AREA CODE 412 – 537-7711

TRADE NAME: DYNAMAX (M42)
GRADE SPECIFICATION DATE: 03/13/86
MSDS REVISION DATE 09/93

APR 15 1994

- TRI-TOOL INC
-
- 3806 SECURITY PARK DR
-
- RANCHO CORDOVA CA 95742

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NO.	PERCENT	OSHA PEL (Mg/M^3)	ACGIH TLV (Mg/M^3)
CARBON	7440-44-0	1.1	3.5	3.5
COBALT	7440-48-4	8.3	0.05	(0.1) *
CHROMIUM	7440-47-3	4.05	0.5	.50 *
IRON	1309-37-1	84.40	10.0	5
MOLYBDENUM	7439-98-7	9.8	10.0 TOTAL DUST	10
	" " "		5.0 RESP. FRACT	
VANADIUM	1314-62-1	1.2	0.05 (DUST)	.05 *
			0.05 (FUME)	
TUNGSTEN	7440-33-7	1.7	5.0	5

* REGULATED AS A TOXIC CHEMICAL UNDER SECTION 313, SARA TITLE III AND 40 CFR 372

III. PHYSICAL DATA

BOILING POINT:	≥ 5000°F	MELTING POINT:	Approximately 2500°F
SPECIFIC GRAVITY (H_2O=1):	Approx. 7.8-8.2 (60°F)	VAPOR PRESSURE:	N/A
VAPOR DENSITY (AIR=I):	N/A	SOLUBILITY IN H_2O:	Insoluble
% VOLATILES BY VOLUME:	N/A	EVAPORATION (BUTYL ACETATE=1):	N/A
APPEARANCE AND ODOR:	Various Shapes, Solid Odorless Metal		

IV. FIRE AND EXPLOSION DATA

FLASH POINT: None FIRE POINT: None

V. HEALTH HAZARD INFORMATION

WE DO NOT CONSIDER THIS PRODUCT IN THE FORM IT IS SOLD TO CONSTITUTE A PHYSICAL HAZARD OR A HEALTH HAZARD. SUBSEQUENT OPERATIONS SUCH AS ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION THAT CAUSES A RELEASE OF DUST OR FUME MAY CAUSE SOME OF THE INGREDIENTS TO CHANGE TO A FORM WHICH COULD AFFECT EXPOSED WORKERS.

PRIMARY ROUTES OF ENTRY:
Inhalation - Eye Contact - Skin Contact - Ingestion

EMERGENCY FIRST AID:
Remove to fresh air, if condition continues - consult physician
Flush well with running water to remove particulate. Get medical attention.
Brush off excess dust. Wash area well with soap and water.
Seek medical help if large quantities of material have been ingested.

EFFECTS OF OVEREXPOSURE:

ACUTE: Short term overexposure to the dust, fumes and/or oxides of certain components of steel products may cause irritation of the eyes, nose or throat; or, may result in metal fume fever characterized by a metallic or sweet taste, dryness and irritation of the throat, wheezing, discoloration of the tongue and flue-like symptoms.

CHRONIC: Excessive and prolonged overexposure to the dust fumes and/or oxides of certain components of steel products may result in chronic interstitial pneumonitis, discoloration of the skin and hair; allergic bronchitis, neoplasms or loss of coordination and balance.

REFER TO PAGE 2 FOR THE EFFECTS OF OVEREXPOSURE TO SPECIFIC ELEMENTS.

EFFECTS OF OVEREXPOSURE CONT'D.:

ACUTE:

CARBON (C) — Irritation of eyes and mucous membranes.
MANGANESE (Mn) — Irritation of eyes, nose and throat; metallic taste in the mouth; acute pneumonia and pneumonitis (respiratory disease).
IRON (Fe) — Irritation of eyes, nose and throat; metal fume fever.
CHROMIUM (Cr) — Irritation of eyes and mucous membranes, dermatitis, skin ulcers and nasal septum perforation.
NICKEL (Ni) — Irritation of eyes and mucous membranes, dermatitis, "nickel itch", pulmonary edema, asthma, headache and vomiting.
MOLYBDENUM (Mo) — Irritation of eyes and mucous membranes.
VANADIUM (V) — As vanadium pentoxide dust or fumes, it may cause irritation of eyes, nose and respiratory tract.
ALUMINUM (Al) — Possible irritation of eyes and mucous membranes.
COBALT (Co) — Irritation of eyes and mucous membranes.
COPPER (Cu) — Irritation of eyes, nose and throat; metal fume fever.
BORON (B) — Irritation of nose and throat.
TANTALUM (Ta) — Dust may cause slight irritation to eyes, nose and throat.
TITANIUM (Ti) — Considered a physiologically inert dust; however, high concentrations may cause irritation of eyes and mucous membranes.
TUNGSTEN (W) — No adverse health effects have been reported in humans.

CHRONIC:

CARBON (C) — Irritation of eyes and mucous membranes.
MANGANESE (Mn) — Inhalation of fumes and dust can cause central nervous system disturbances, increased upper respiratory disorders and infections, cumulative lung damage, psychiatric disorders, liver cirrosis and anemia.
IRON (Fe) — Inhalation of iron oxide fumes and dust may cause chronic bronchitis, conjunctivitis, choroiditis, retinitis and siderosis of tissues.
CHROMIUM (Cr) — The toxicity and health hazards of chromium are heavily dependent upon its oxidation state. Trivalent and devalent chromium, as in chromium metal and chromium-containing alloys have a low order of toxicity. The hexavalent form (chromates and chromic acids) may cause irritant and allergic contact dermatitis, skin ulcers and nasal irritation varying from rhinitis to perforation of the nasal septum. Reported carcinogen.
NICKEL (Ni) — Nickel dust or fume can cause sensitization dermatitis, "nickel itch", and may cause cancer of the paranasal sinuses and lungs.
MOLYBDENUM (Mo) — Human industrial poisoning by molybdenum has yet to be reported.
VANADIUM (V) — As vanadium pentoxide dust or fumes, it may cause irritation of eyes, nose and respiratory tract (More severe than acute exposure), chronic bronchitis and allergic skin rash.
ALUMINUM (Al) — Possible irritation of eyes and mucous membranes. Reported as a cause of pulmonary fibrosis.
COBALT (Co) — May cause allergic skin rashes and respiratory disease.
COPPER (Cu) — Skin irritation; discoloration of the skin or the hair and metal fume fever.
BORON (B) — Possible irritation of the respiratory tract and nose bleeds.
TANTALUM (Ta) — Dust may be slight irritant to eyes, nose and throat.
TITANIUM (Ti) — Considered a physiologically inert dust; however, high concentrations may cause irritation of eyes and mucous membranes.
TUNGSTEN (W) — No adverse health effects have been reported in humans.

CARCINOGENICITY:

	NTP	IARC MONOGRAPHS	OSHA REGULATED
CHROMIUM (Cr)	YES	YES	YES, PEL established
NICKEL (Ni)	YES	YES	YES, PEL established

VI. REACTIVITY DATA

STABILITY:	Chemically Stable
INCOMPATIBILITY:	Reacts with Strong Acids to Generate Hydrogen Gas
HAZARDOUS DECOMPOSITION PRODUCTS:	Metallic Oxides

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL: N/A
WASTE DISPOSAL METHOD:
Solids — Sale as Scrap
Dust, etc. — Follow Federal, State and Local Regulations Regarding Disposal

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: General — Recommended. Local — As Required.

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection:	If fumes, misting or dust condition occurs and TLV as indicated in Section II is exceeded, provide NIOSH approved respirators.
Eye Protection:	Recommended.
Gloves:	As required.
Other Clothing or Equipment:	As required.

IX. SPECIAL PRECAUTIONS

USE GOOD HOUSEKEEPING PRACTICES TO PREVENT ACCUMULATIONS OF DUSTS AND TO KEEP AIRBORNE DUST CONCENTRATIONS AT A MINIMUM.