# MATERIAL SAFTEY DATA SHEET

		I. PROD	UCT IDENT	IFICATION		
MANUFACTURER'S NAME:	Metallurgical Processin	ng, Inc			TELEPHONE NO: (	860) 224-2648
ADDRESS:	68 Arthur Street New Britain, CT 0605	0			DATE PREPARED: Se	ptember, 1997
TRADE NAME: CHEMICAL NAME:	BETA TiN Titanium Nitride (TiN)					
		II. HAZA	RDOUS INC	REDIENTS	• • • • • • • • • • • • • • • • • • • •	
The terms "hazardous" and hazar Standard (29 CFR Part 1910, 120						Communications
MATERIAL OR COMPONEN	T C	AS NO.	Wt%	OSHA PEL (Mg/M³)	ACGIH TLV(Mg/M³)	
Titanium (Ti) Nitrogen (N₂)		140-32-6 727-37-9	77.3 22.7	15 N/A	5 N/A	
		III.	PHYSICAL	DATA ••••		
BOILING POINT: SPECIFIC GRAVITY (H <sub>2</sub> O=1) VAPOR DENSITY (AIR=1) % VOLATILES BY VOLUME:			0 (60° F)	MELTING POINT: VAPOR PRESSURE: SOLUBILITY IN 14O: EVAPORATION (BUTYL)	N/A Insc	oluble
APPEARANCE:				: .0001" thick, odorless ly inert substance.		
		This extremely thin film of Titanium Nitride coating is applied to cutting tools, forming tools, molds and wear parts for extending part life.				tools,
		IV. FIRE A	AND EXPLO	SION DATA		
FLASH POINT:	Ne	one		FIRE POINT:	Nor	ne
	V	. HEALTH	I HAZARD I	INFORMATION • = =		
WE DO NOT CONSIDER THE C SUCH AS ABREADING, MELTIN POTENTIALLY HAZARDOUS DU FUMES WHICH CAN BE INHALE THE COATED OBJECT (SUBST HEALTH HAZARD EFFECTS FRO	IG, WELDING, CUTTING JST OR FUMES WHICH ED, WILL CONSIST OF EX RATE MATERIAL). USER	OR PROCESS CAN BE INHA TREMELY MII S OF COATE	SING IN ANY OT ALED, SWALLOV NUTE PARTICLE	THER FASHION, A TITANIUM VED, OR COME IN CONTAC S OF TITANIUM NITRIDE TO	NITRIDE COATING OBJECT, I T WITH THE SKIN OR EYES. GETHER WITH ARTICLES OF N	MAY PRODUCE THE DUST OF MATERIAL FROM

PRIMARY ROUTES OF ENTRY: Inhalation **EMERGENCY FIRST AID:** Remove to fresh air, if condition continues, consult physician.

> Eye Contact Flush well with running water to

remove particulate. Get medical

attention.

Skin Contact Brush off excess dust. Wash out

area with soap and water.

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

EFFECT OF EXPOSURE: No toxic effects would be expected from exposure to the solid form of Titanium Nitride coated tools. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing of welding may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Subpart Z. See Section II) •••••• V. HEALTH HAZARD INFORMATION (CONT'D)

Section II lists specific ingredients and permissible exposure limits. **EXPOSURE LIMITS:** 

IMPORTANT: Determine actual exposure by industrial hygiene monitoring.

POSSIBLE SIGNS AND SYMPTOMS OF EXPOSURE TO DUST, WELDING, FUME AND GASES:

SHORT TERM EXPOSURE: Metallic taste; nausea, tightness of chest; fever; irritation of eyes, nose, throat and skin; loss of

consciousness / death due to welding gases of lack of oxygen.

LONG TERM EXPOSURE: There are no adverse effects for Titanium Nitride coated products in their solid form.

Adverse effects may or may not result from long-term (chronic) exposure to dust, fume, gases, etc. that occur by way of subsequent operations on the Titanium Nitride coated product.

It is believed there are no reliable scientific studies which show that workers exposed to operations upon Titanium Nitride coated products suffer increased incidence of lung cancer or other

disease because of exposure to Titanium Nitride.

Some studies would associate elements form various substrate materials (material the coated object is made of) with the potential for neurologic, pulmonary, respiratory, skin or other disease. Chromium, cobalt and nickel in various chemical compounds have been identified as suspect human carcinogens by the I.A.R.C., N.T.P Annual Report. Users of Titanium Nitride

coated products should check MSDS sheets of substrate material for possible health hazard

effects from material of coated object.

AGGRAVATION OF PREEXISTING RESPIRATORY OR ALLERGIC CONDITIONS MAY OCCUR IN SOME WORKERS.

## **VI. REACTIVITY DATA**

STABILITY: INCOMPATIBILITY: HAZARDOUS DECOMPOSITION PRODUCTS:

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Chemically Stable Reacts with Strong Acids Metallic Oxides

## **VII. SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL:

WASTE DISPOSAL METHOD:

N/A

Solids -Sale as scrap for reuse

Dust, etc. -Follow federal, state and local regulations

regarding disposal

## **VIII. SPECIAL PROTECTION INFORMATION**

**VENTILATION REQUIREMENTS:** General - Recommended (to keep airborne concentration of dust and fumes below ACGIH TLV's

Local - As Required

PERSONAL PROTECTIVE EQUIPMENT:

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If fumes, misting or dust condition occurs and TLV as indicated in Section II is exceeded, provide Respiratory Protection:

NIOSH approved respirators.

Eye Protection: Recommended approved safety glasses of goggles when working with dusty material.

Gloves: As required Other Clothing of Equipment: As Required

## IX. SPECIAL PRECAUTIONS

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

THIS MATERIAL IS POTENTIALLY CONTAMINATED WITH COATINGS SUCH AS OILS FOR PRESERVATIVES AND OTHER CONTAMINANTS. IF THE MATERIAL IS CONTAMINATED, SPECIAL PRECAUTIONS (SUCH AS PROCESS CONTROL, AND PERSONAL PROTECTIVE EQUIPMENT APPROPRIATE TO THE NATURE OF THE SUSSPECTED CONTAMINANTS SHOULD BE TAKEN TO AVOID RESULTING EXPOSURES WHEN HANDLING, CUTTING (THERMAL OF MECHANICAL) AND/OR HEATING OR MELTING.

While the information set forth in this material safety date sheet is believed to be accurate, as of the effective date, Metallurgical Processing, Inc. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use or reliance on the information by any person. N/A = NOT APPLICABLE