SUPPLIER

MATERION

MATERIAL SAFETY DATA SHEET

GENERATED 03/15/2011, **REVISION** 11/24/2008, **SUPERCEDES REVISION** 09/03/2002, **DATE CREATED** 11/21/1990

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
Titanium nitride, powder and pieces

PRODUCT CODE: T-MSDS0031

PRODUCT NAME: Titanium nitride, powder and pieces

REFERENCE #: 25583-20-4

MANUFACTURER INFORMATION

COMPANY NAME: Materion Advanced Chemicals Inc.
1316 W. St. Paul Avenue
Milwaukee, WI 53233

EMERGENCY CONTACT: CHEMTREC (800)424-9300

ALTERNATE EMERGENCY CONTACT: Materion Advanced Chemicals Inc. (414)289-9800

CHEMICAL FAMILY: Metal nitride

CAS NUMBER: 25583-20-4

SYNONYMS

Titanium nitride, titanium mononitride

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS
Titanium nitride, powder and pieces

Hazardous Components (Chemical Name)	CAS# / EC#	Concentration	OSHA PEL	ACGIH TLV	Other Limits
Titanium nitride	25583-20-4 NA	0.0 -100.0 %	NE	NE	NE

See SECTION IX- ADDITIONAL COMMENTS FOR COSHH Regulations	NA NA	0.0 -100.0 %

SECTION 3. HAZARDS IDENTIFICATION
Titanium nitride, powder and pieces

EMERGENCY OVERVIEW

ROUTE(S) OF ENTRY: Inhalation? Yes , Skin? No , Eyes? No , Ingestion? Yes
Other: N

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

To the best of our knowledge the chemical, physical and toxicological properties of titanium nitride have not been thoroughly investigated and recorded.

Titanium compounds are generally considered to be physiologically inert. There are no reported cases in the literature where titanium as such has caused human intoxication. The dusts of titanium or most titnaium compounds such as titanium oxide may be placed in the nuisance category. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Ammonia gas is a human poison by an unspecified route. Poison by inhalation, ingestion, and possibly other routes. An eye, mucous membrane, and systemic irritant by inhalation. Mutation data reported. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

INHALATION:
Acute: May cause irritation to the respiratory system and mucous membranes of the nose and throat. Ammonia gas may cause irritation to the nose and throat, dyspnea, bronchial spasms, chest pain, pulmonary edema and pink frothy sputum.
Chronic: May cause pulmonary edema. Repeated or prolonged exposure to ammonia gas may cause swelling of mouth and throat to the point of asphyxiation, permanent injury and death.

INGESTION:
Acute: Considered to have low toxicity by ingestion. Ammonia gas may cause nausea, vomiting and burns.
Chronic: No chronic health effects recorded.

SKIN:
Acute: May cause irritation. Ammonia gas may cause irritation and chemical burns.
Chronic: Repeated or prolonged exposure to ammonia gas may cause tissue damage.

EYE:
Acute: May cause moderate irritation. Ammonia gas may cause severe irritation and chemical burns.
Chronic: Repeated or prolonged exposure to ammonia gas may cause irrevirsible damage to the conjunctiva, cornea and lens.

TARGET ORGANS: May affect the respiratory system, skin and eyes.

RECOMMENDED EXPOSURE LIMITS

See "Section II"

LD 50 / LC 50

No toxicity data recorded.

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: May cause a red, dry throat, coughing, shortness of breath, swelling of mouth and throat.

INGESTION: May cause tissue damage, chemical burns, nausea and vomiting.

SKIN: May cause redness, burning, itching, inflammation, blistering and tissue damage.

EYE: May cause redness, burning, itching, watering, lens opacities and ulceration of the conjunctiva and cornea.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Pre-existing lung and skin disorders.

SECTION 4. FIRST AID MEASURES
Titanium nitride, powder and pieces

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

INGESTION: Do not induce vomiting, seek medical attention.

SKIN: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention.

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention.

SECTION 5. FIRE FIGHTING MEASURES
Titanium nitride, powder and pieces

FLASH PT: N.A.

EXPLOSIVE LIMITS: LEL: NA UEL: NA

AUTOIGNITION PT:

FIRE FIGHTING INSTRUCTIONS

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

FLAMMABLE PROPERTIES AND HAZARDS

When heated to decomposition, titanium nitride may emit toxic fumes of ammonia gas which can form explosive mixtures with air. Contact with acids may generate flammable hydrogen gas.
May react with moist air to liberate ammonia gas.

HAZARDOUS COMBUSTION PRODUCTS

EXTINGUISHING MEDIA

USE: Not applicable. Use suitable extinguishing media for surrounding materials and type of fire.

UNSUITABLE EXTINGUISHING MEDIA

SECTION 6. ACCIDENTAL RELEASE MEASURES
Titanium nitride, powder and pieces

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wear appropriate respiratory and protective equipment specified in section VIII-control measures. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

SECTION 7. HANDLING AND STORAGE
Titanium nitride, powder and pieces

HAZARD LABEL INFORMATION:

Store in cool, dry area Store in tightly sealed container Wash thoroughly after handling Store in an inert atmosphere

PRECAUTIONS TO BE TAKEN IN HANDLING

Titanium nitride may be moisture sensitive, handle and store under argon or other inert gas.

PRECAUTIONS TO BE TAKEN IN STORING

Titanium nitride may be moisture sensitive, handle and store under argon or other inert gas.

OTHER PRECAUTIONS

Titanium nitride may be moisture sensitive, handle and store under argon or other inert gas.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Titanium nitride, powder and pieces

PROTECTIVE EQUIPMENT SUMMARY - HAZARD LABEL INFORMATION:

NIOSH approved respirator Impervious gloves Safety glasses Clothes to prevent skin contact

RESPIRATORY EQUIPMENT (SPECIFY TYPE)

NIOSH - approved respirator

EYE PROTECTION

Safety glasses or goggles

PROTECTIVE GLOVES

Rubber gloves

OTHER PROTECTIVE CLOTHING

Protective gear suitable to prevent contamination

ENGINEERING CONTROLS (VENTILATION ETC.)

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Handle in a controlled atmosphere
Mechanical (Gen): Not recommended
Other: Handle in an inert gas such as argon

WORK/HYGIENIC/MAINTENANCE PRACTICES

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
Titanium nitride, powder and pieces

PHYSICAL STATES:	[ ] Gas [ ] Liquid [X] Solid
MELTING POINT:	2930.00 C
BOILING POINT:	N.A.
FLASH PT:	N.A.
EXPLOSIVE LIMITS:	LEL: NA UEL: NA
SPECIFIC GRAVITY (WATER = 1):	5.22
VAPOR PRESSURE (VS. AIR OR MM HG):	
VAPOR DENSITY (VS. AIR = 1):	
EVAPORATION RATE (VS BUTYL ACETATE=1):	
SOLUBILITY IN WATER:	insoluble
PERCENT VOLATILE:	N.A.

FORMULA: TiN

MOLECULAR WEIGHT: 61.89

APPEARANCE AND ODOR

Gray-black powder, may have an ammonia odor in moist air.

SECTION 10. STABILITY AND REACTIVITY
Titanium nitride, powder and pieces

STABILITY: Unstable [ ] Stable [X]

CONDITIONS TO AVOID - INSTABILITY

None

INCOMPATIBILITY - MATERIALS TO AVOID

Water, steam, moisture and acids.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS

Ammonia gas, hydrogen gas and oxides of nitrogen.

HAZARDOUS POLYMERIZATION: Will occur [ ] Will not occur [X]

CONDITIONS TO AVOID - HAZARDOUS POLYMERIZATION

None

SECTION 11. TOXICOLOGICAL INFORMATION
Titanium nitride, powder and pieces

None recorded

CHRONIC TOXICOLOGICAL EFFECTS

CARCINOGENICITY / OTHER INFORMATION

CARCINOGENICITY: NTP? No IARC Monographs? No OSHA Regulated? No

SECTION 12. ECOLOGICAL INFORMATION
Titanium nitride, powder and pieces

None recorded

SECTION 13. DISPOSAL CONSIDERATIONS
Titanium nitride, powder and pieces

WASTE DISPOSAL METHOD

Dispose of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION
Titanium nitride, powder and pieces

LAND TRANSPORT (US DOT)

DOT PROPER SHIPPING NAME Not Regulated

LAND TRANSPORT (EUROPEAN ADR/RID)

ADDITIONAL TRANSPORT INFORMATION

SECTION 15. REGULATORY INFORMATION
Titanium nitride, powder and pieces

EUROPEAN COMMUNITY HAZARD SYMBOL CODES

EUROPEAN COMMUNITY RISK AND SAFETY PHRASES

SECTION 16. OTHER INFORMATION
Titanium nitride, powder and pieces

Control of Substances Hazardous to Health Regulations
EH40 Occupational Exposure Limits

Maximum Exposure Limit: NE
Occupational Exposure Standard: NE

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