

Material Safety Data Sheet (MSDS) For TITRIX® Powders

IAP Research Inc.

Issuing Date : June 2013

I. Product And Company Identification:

Product Name	TITRIX®
Product Identification	Non reactive Mixture of Titanium powder (75 -99 wt %) with nano sized titanium carbide powder (25-1 wt %)
CAS Name and Formula of ingredients in the mixture	Titanium (Ti) and Titanium Carbide (TiC)
CAS Number	Titanium 7440-32-6; Titanium carbide 12070-08-5
UN-No	UN 3178 (Titanium, Titanium Carbide)
Manufactured by	IAP Research, Inc.
Telephone number (Switch board)	937-296-1806
E-mail Contact	
Product Information	937-296-1806

Emergency Contact

For Chemical Emergency

Spill, Leak, Fire, Exposure, or Accident

CHEMTREC : (800)-424-9300

(703) 527-3887 (Outside the USA/Canada, collect calls accepted)

II. Hazards Identification

Fire and Explosive Flammable solid. Pyrophoric. Spontaneously flammable in air, especially in fine powder form.

Potential Health Effects

Eye May cause irritation to eyes.

Skin May cause irritation to skin and cleaning with soap and water is recommended.

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Ingestion	May be harmful if swallowed.
Inhalation	May cause irritation to respiratory tract. Prolonged exposure may cause lung irritation and other adverse effects.

III. Composition /information on ingredients

Chemical name	Titanium, Titanium Carbide
Weight % of ingredients	Titanium powder (99-75 wt %) mixed with nano Titanium carbide (1-25 wt %).
CAS-No.for ingredients of the mixture	Titanium 7440-32-6; Titanium carbide 12070-08-5

IV. First Aid Measures

Eye Contact	Rinse thoroughly with water for several minutes and seek medical advice.
Skin contact	Wash thoroughly with soap and water and in the event of skin reaction seek medical advice.
Inhalation	Supply fresh air. If required give artificial respiration. Give oxygen as necessary. Seek immediate medical advice.
Ingestion	If ingested, seek medical advice.

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V. Fire Fighting Measures

Flammable Properties

Flammable in the dust form. When exposed to an ignition source, the product will ignite, and burn with intense heat and a large quantity of smoke. Do not extinguish with water. Typical dust type explosion can occur. In the event of a fire involving titanium, use extinguishers designed for metal fires, dry chemical powders, salts or inert gases. The application of water to burning titanium can cause an explosion due to the evolution of hydrogen.

Flash Point

Not applicable

Instruction to Firefighters

Class D fire extinguisher, do not use halon type fire extinguisher, do not use water.

Sensitivity to static Discharge

Fine powder particles may be sensitive to static discharge and cause ignition. So take proper precautions.

Special protective equipment for Firefighters

Wear self contained breathing equipment and protective gear while fighting fires.

VI. Accidental Release Measures

Personal precautions

Keep personnel away from spill/leak, remove to ventilated area, and use personal protective gear.

Methods of containment

Prevent further spillage if safe to do so. Prevent material from entering waterways.

Methods of cleaning up

Do not vacuum. Sweep up and shovel into metal containers with sealed lid for suitable disposal. Take precautions to avoid static build up.

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VII. Handling and Storage

Handling

With fine dust , handle under inert gas and protect from moisture. Keep away from sparks, heat and open flame. No smoking while handling and always use with suitable exhaust ventilation.

Storage

Keep container tightly closed in a dry and well ventilated, dry place.

VIII. Exposure Controls and Personal Protection

It is advisable to work with fine and nano powders in a well designed chemical fume hood.

OSHA PEL

Contains particulates not otherwise regulated of 15 mg/m³ for total dust and 5 mg/m³ for respirable fraction (8-hour time-weighted average (TWA-8)). The ACGIH TLV for particles (insoluble or poorly soluble) not otherwise specified is 10 mg/m³ for inhalable particles and 3 mg/m³ for respirable particles (TWA-8).

Eye/face protection

Safety glasses with side shields or goggles or face shield.

Skin and Body Protection

Wear fire /flame resistant/retardant clothing, nitrile rubber gloves. Type of protective clothing must be selected based on concentrations/substances being used.

Respiratory Protection

When dealing with high concentrations, use suitable MSHA/NIOSH approved respiratory protection. Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle NIOSH-approved N100 respirator cartridge as a backup to engineering controls.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of work day.

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IX. Physical and Chemical Properties

Appearance
Odor
Physical state
PH
Melting point
Boiling Point
Flammability limits in air
Explosion limits
Water solubility
Vapor pressure
Bulk density

Titanium Powders

Silver or black metal powder
odorless
solid
Not applicable
1662 C /3024 F
3287 C/ 5949 F
The substance or mixture is pyrophoric.
Not available
Insoluble in water
Not applicable
4.5 g/cc

Nano Titanium carbide powders

Appearance
Odor
Physical state
PH
Melting point
Boiling Point
Flammability limits in air
Explosion limits
Water solubility
Vapor pressure
Bulk density

Black metal powder
odor not determined
solid
Not applicable
3,140 °C / 5,684 °F
4820 °C / 8708 °F
The substance or mixture is pyrophoric.
Not available
No data available
Not applicable
4.93g/cc

X. Stability and Reactivity

Stability
Incompatible Products

Stable in air, will burn if ignited.
Oxidizing agents, Acids, Halogens, Halides and Metal Oxides

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Avoid	Avoid dust formation in air, keep away from sparks, flames and other ignition sources, avoid conditions of static discharge.
Hazardous reactions	May liberate hydrogen gas in contact with water in the presence of a fire.

XI. Toxicological Information

Acute toxicity	Powder will cause irritation to skin and eyes on contact. Inhalation will cause irritation to the lungs and mucous membrane. Eye exposure may cause irritation which could include watering and redness. Reddening, scaling, and itching may happen with skin contact.
Chronic effects	None specifically known. Acute effects dominate.
Carcinogenicity	Not carcinogenic.
Target organ effects	Eyes, skin and respiratory system. Fine/ Nano powders can enter eyes, skin and respiratory system and cause irritation. Proper precautions should be taken.

To the best of our knowledge the chronic toxicity of these substances (Ti and TiC) is not fully known. No classification data on carcinogenic properties of this material is available from the EPA,IARC,NTP, OSHA Or ACGIH.

XII. Ecological Information

Ecotoxicity	None known.
Degradability	Not biodegradable.
General Notes	Do not release material to atmosphere.

XIII. Disposal Considerations

Waste disposal Methods	Dispose in accordance with local regulations. Dispose of excess or spilled product as hazardous waste due to flammability characteristic.
Contaminated packaging	Containers should be disposed of in accordance with local regulations.
US EPA waste number	D001

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XIV. Transport Information

Proper Shipping name	Flammable solid, inorganic, n.o.s (titanium, titanium carbide)
Hazard class	4.1
UN-No	UN3178
Packing group	II

XV. Regulatory Information

TSCA: All components of this product are listed on the TSCA Inventory or are exempt from TSCA Inventory requirements. No component of this product is the subject of a significant new use rule.

Canada: All components of this product are listed on the Domestic Substances List or are exempt from DSL requirements.

EPCRA: No components of this product are listed as extremely hazardous substances under 40 CFR Part 355 or as toxic chemicals under 40 CFR Part 372.

California Proposition 65: No components of this product are listed as a carcinogen or reproductive toxicant under Proposition 65.

HMIS Rating

Health Hazard	1
Flammability Hazard	3
Physical Hazard	1
Personal Protection	F

Date: Jun-13

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Disclaimer

The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is the buyer's/user's responsibility to ensure that its activities comply with all applicable laws.