

1. PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| Product Name | Titanium, Enriched Titanium |
| Chemical Formula | Ti |
| Molecular Weight | 47.87 g/mol |
| CAS No. | 7440-32-6 |
| EINECS No. | 231-142-3 |
| Supplier Address* | ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States |
| Telephone | +1 415-440-4433 |
| Fax | +1 415-563-4433 |
| Emergency Phone Number (both supplier and manufacturer) | Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions |
| Email | iusa@isoflex.com |
| Website | www.isoflex.com |
| Preparation Information | ISOFLEX USA Product Safety +1 415-440-4433 |

2. HAZARDS IDENTIFICATION

Emergency Overview:

OSHA Hazards: Flammable solid

GHS Classification: Pyrophoric solids (Category 1)

GHS Label elements, including precautionary statements:

Signal word: Danger

Hazard statement(s): **H250** Catches fire spontaneously if exposed to air.

Precautionary statement(s): **P222** Do not allow contact with air. **P231** Handle under inert gas. **P422** Store contents under inert gas.

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 2



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 2 Physical Hazard = 2

| | |
|------------------------|----------|
| HEALTH HAZARD | 0 |
| FLAMMABILITY | 2 |
| PHYSICAL HAZARD | 2 |

Potential Health Effects

| | |
|-------------------|--|
| <i>Inhalation</i> | May be harmful if inhaled; may cause respiratory tract irritation |
| <i>Skin</i> | May be harmful if absorbed through skin; may cause skin irritation |
| <i>Eyes</i> | May cause eye irritation |
| <i>Ingestion</i> | May be harmful if swallowed |

3. COMPOSITION / INFORMATION ON INGREDIENTS

| | |
|-------------------|-------------|
| Chemical Name: | Titanium |
| CAS No.: | 7440-32-6 |
| Chemical Formula: | Ti |
| Molecular Weight: | 47.87 g/mol |

4. FIRST AID MEASURES

| | |
|----------------------------|---|
| <i>General Advice</i> | Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. |
| <i>Inhalation Exposure</i> | If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| <i>Dermal Exposure</i> | Wash off with soap and plenty of water. Consult a physician. |
| <i>Eye Exposure</i> | Flush eyes with water as a precaution. |
| <i>Oral Exposure</i> | Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. |

5. FIREFIGHTING MEASURES

| | |
|--------------------------------------|--|
| <i>Conditions of Flammability</i> | Flammable in the presence of a source of ignition, through friction or retained heat. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| <i>Extinguishing Media</i> | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
| Firefighting | |
| <i>Protective Equipment</i> | Wear self-contained breathing apparatus for firefighting if necessary. |
| <i>Hazardous Combustion Products</i> | Hazardous decomposition products formed under fire conditions: Titanium/titanium oxides |
| <i>Further Information</i> | Use water spray to cool unopened containers. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|----------------------------------|---|
| <i>Personal Precautions</i> | Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. |
| <i>Environmental Precautions</i> | Prevent further leakage or spillage if safe to do so. Do not let product enter drains. |

Methods for Cleaning Up Sweep up and shovel. Contain spillage, and then collect with an electrically-protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition. NO SMOKING.

Storage

Keep container tightly closed in a dry and well-ventilated place. Handle and store under inert gas. Air- and moisture-sensitive. Keep in a dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines Contains no substances with occupational exposure limit values.

Personal Protective Equipment

Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand Protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Use protective gloves against thermal risks.

Eye Protection

Face shield and safety glasses: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and Body Protection

Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene Measures

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form

Powder

Color

N/A

Odor

N/A

Safety Data

pH:

N/A

Flash Point:

N/A

Density:

4.5 g/mL at 25 °C (77 °F)

Melting Point/Range:

1660 °C (3020 °F)

Boiling Point:

3287 °C (5949 °F)

Ignition Temperature:

N/A

Autoignition Temperature: Pyrophoric / subcategory 1

Lower explosion limit:

N/A

Upper explosion limit:

N/A

Vapor Pressure:

N/A

Water Solubility:

Insoluble

Partition Coefficient:

N/A

Relative Vapor Density: N/A

Odor Threshold:

N/A

Evaporation Rate:

N/A



10. STABILITY AND REACTIVITY

| | |
|---|--|
| <i>Chemical Stability</i> | Stable under recommended storage conditions |
| <i>Possibility of Hazardous Reactions</i> | Reacts violently with water |
| <i>Conditions to Avoid</i> | No data available |
| <i>Materials to Avoid</i> | Oxygen, aluminum, carbon dioxide (CO ₂), halogens, chlorinated solvents, strong acids, strong oxidizing agents |
| <i>Hazardous Decomposition Products</i> | Hazardous decomposition products formed under fire conditions: Titanium/titanium oxides |
| <i>Other Decomposition Products</i> | No data available |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

| | |
|---|-------------------|
| <i>Oral LD50</i> | No data available |
| <i>Inhalation LC50</i> | No data available |
| <i>Dermal LD50</i> | No data available |
| <i>Other Information</i> | No data available |
| <i>Skin Corrosion/Irritation</i> | No data available |
| <i>Serious Eye Damage/ Eye Irritation</i> | No data available |
| <i>Respiratory or Skin Sensitization</i> | No data available |
| <i>Germ Cell Mutagenicity</i> | No data available |

Carcinogenicity

| | |
|--|---|
| <i>IARC</i> | No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC. |
| <i>ACGIH</i> | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. |
| <i>NTP</i> | No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. |
| <i>OSHA</i> | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. |
| <i>Reproductive Toxicity</i> | No data available |
| <i>Teratogenicity</i> | No data available |
| <i>Specific Target Organ Toxicity / Single Exposure (Globally Harmonized System)</i> | No data available |
| <i>Specific Target Organ Toxicity / Repeated Exposure (Globally Harmonized System)</i> | No data available |
| <i>Aspiration Hazard</i> | No data available |



Potential Health Effects

| | |
|---------------------------------------|---|
| <i>Inhalation</i> | May be harmful if inhaled; may cause respiratory tract irritation |
| <i>Ingestion</i> | May be harmful if swallowed |
| <i>Skin</i> | May be harmful if absorbed through skin; may cause skin irritation |
| <i>Eyes</i> | May cause eye irritation |
| <i>Signs and Symptoms of Exposure</i> | To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. |
| <i>Synergistic Effects</i> | No data available |
| <i>Additional Information</i> | RTECS: XR1700000 |

12. ECOLOGICAL INFORMATION

Do not empty into drains.

13. DISPOSAL CONSIDERATIONS

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|-------------------------------|--|
| <i>Product</i> | Burn in a chemical incinerator equipped with an afterburner and scrubber, but exert extra care in igniting, as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. |
| <i>Contaminated Packaging</i> | Dispose of as unused product. |

14. TRANSPORT INFORMATION**DOT (US)**

| | |
|---------------------------------|-------------------------|
| <i>UN No.</i> | 2878 |
| <i>Class</i> | 4.1 |
| <i>Packing Group</i> | III |
| <i>Proper Shipping Name</i> | Titanium sponge powders |
| <i>Marine Pollutant</i> | No |
| <i>Poison Inhalation Hazard</i> | No |

IMDG

| | |
|-----------------------------|--------------------------|
| <i>UN No.</i> | 2878 |
| <i>Class</i> | 4.1 |
| <i>Packing Group</i> | III |
| <i>EMS No.</i> | F-G, S-G |
| <i>Proper Shipping Name</i> | TITANIUM, SPONGE POWDERS |
| <i>Marine Pollutant</i> | No |

IATA

| | |
|-----------------------------|-------------------------|
| <i>UN No.</i> | 2878 |
| <i>Class</i> | 4.1 |
| <i>Packing Group</i> | III |
| <i>Proper Shipping Name</i> | Titanium sponge powders |

15. REGULATORY INFORMATION

| | |
|---|---|
| <i>OSHA Hazards</i> | Flammable solid |
| <i>SARA 302</i> | No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. |
| <i>SARA 313</i> | This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313. |
| <i>SARA 311/312 Hazards</i> | Fire Hazard |
| Massachusetts Right to Know Components | No components are subject to the Massachusetts Right to Know Act. |
| Pennsylvania Right to Know Components | Titanium / CAS No. 7440-32-6 / Revision Date 2007-03-01 |
| New Jersey Right to Know Components | Titanium / CAS No. 7440-32-6 / Revision Date 2007-03-01 |
| California Prop. 65 Components | This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm. |

16. OTHER INFORMATION

Prepared By ISOFLEX USA
PO Box 472615
San Francisco CA 94147
United States

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Revision Date October 19, 2024
Revision Number 4
Revision Note Update supplier address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

| | |
|--------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ADR | European Agreement Concerning the International Carriage of Dangerous Goods by Road |
| AICS | Australian Inventory of Chemical Substances |
| ALARA | As Low As Is Reasonably Achievable |
| AMU | Atomic Mass Unit |
| ANSI | American National Standards Institute |
| BLS | Basic Life Support |
| BOD5 | Biochemical Oxygen Demand |
| CAM | Continuous Air Monitor |
| CAS | Chemical Abstracts Service (division of the American Chemical Society) |
| CEN | European Committee for Standardization |
| CERCLA | Comprehensive Environmental Response Compensation and Liability Act |
| CLP | Classification, Labelling and Packaging (European Union) |
| COD | Chemical Oxygen Demand |
| CPR | Controlled Products Regulations (Canada) |
| CWA | Clean Water Act (USA) |
| DAC | Derived Air Concentration (USA) |
| DOE | United States Department of Energy (USA) |
| DOT | United States Department of Transportation (USA) |
| DSL | Domestic Substances List (Canada) |
| EC50 | Half Maximal Effective Concentration |
| ECL | Korean Existing Chemicals List |
| EINECS | European Inventory of Existing Commercial Chemical Substances |

| | |
|--------|---|
| EHS | Environmentally Hazardous Substance |
| ELINCS | European List of Notified Chemical Substances |
| EMS | Emergency Response Procedures for Ships Carrying Dangerous Goods |
| EPA | Environmental Protection Agency (USA) |
| EPCRA | Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 |
| GHS | Globally Harmonized System |
| HMIS | Hazardous Materials Identification System (USA) |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | Intermediate Bulk Containers |
| ICAO | International Civil Aviation Organization |
| IDLH | Immediately Dangerous to Life or Health |
| IECSC | Inventory of Existing Chemical Substances Produced or Imported in China |
| IMDG | International Maritime Code for Dangerous Goods |
| LC50 | Lethal concentration, 50 percent |
| LD50 | Lethal dose, 50 percent |
| LDLO | Lethal Dose Low |
| LOEC | Lowest-Observed-Effective Concentration |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MSHA | Mine Safety and Health Administration (USA) |
| NCRP | National Council on Radiation Protection & Measurements (USA) |
| NDSL | Non-Domestic Substances List (Canada) |
| NFPA | National Fire Protection Association (USA) |
| NIOSH | National Institute for Occupational Safety and Health (USA) |
| NOEC | No Observed Effect Concentration |
| N.O.S. | Not Otherwise Specified |
| NRC | Nuclear Regulatory Commission (USA) |
| NTP | National Toxicology Program (USA) |
| OSHA | Occupational Safety and Health Administration (USA) |
| PBT | Persistent Bioaccumulative and Toxic Chemical |
| PEL | Permissible Exposure Limit |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PIH | Poisonous by Inhalation Hazard |
| RCRA | Resource Conservation and Recovery Act (USA) |
| RCT | Radiation Control Technician |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe) |
| RID | Regulations Concerning the International Transport of Dangerous Goods by Rail |
| RQ | Reportable Quantity |
| RTECS | Registry of Toxic Effects of Chemical Substances |
| SARA | Superfund Amendments and Reauthorization Act (USA) |
| SNUR | Significant New Use Rule (TSCA) |
| TDG | Transportation of Dangerous Goods (Canada) |
| TIH | Toxic by Inhalation Hazard |
| TLV | Threshold Limit Value |
| TPQ | Threshold Planning Quantity |
| TSCA | Toxic Substances Control Act |
| TWA | Time Weighted Average |
| UN | United Nations (Number) |
| VOC | Volatile Organic Compound |
| vPvB | Very Persistent Very Bioaccumulative Chemical |
| WGK | Wassergefährdungsklassen (Germany: Water Hazard Classes) |
| WHMIS | Workplace Hazardous Materials Information System |

*One or more of the above-listed items may not appear in this document.

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