

Material Safety Data Sheet: Nb-doped Strontium Titanate Page 1 of 3

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Section 1, Product Identification

Trade Name: Nb-doped Strontium Titanate

Synonyms: N/A

Chemical Nature: Metal Oxide

Formula: Nb: SrTiO₃

OSHA PEL: N/E

ACGIH TLV: N/E

Section 2: Composition/Ingredients

<u>INGREDIENT</u>	<u>CAS#</u>	<u>Percent</u>
Strontium Titanate	1206-05-9	100

Section 3: Physical/Chemical Data

Boiling Point: Not established

Specific Gravity (H₂O=1): No data

Vapor Pressure (mm Hg): No Data

Vapor Density (Air = 1): >1

% Volatile by Volume: 0

Evaporation Rate (Butyl Acetate=1): 0

Solubility in Water: Insoluble

Melting Point: Approx 2060 deg C

Solubility in Mineral Acids: N/A

Appearance and Odor: White-gray odorless solid

Section 4: Fire and Explosion Hazard Data

Flash Point: None

Auto-ignition Temp: N/A

Flammable Limits: Upper: N/AF

Flammable Limits in Air, by Volume: N/A

Extinguishing Media: Non-combustible. If involved in a fire use dry ground Dolomite, dry sand, or powdered Graphite. DO NOT USE WATER

Special Fire Fighting Procedures: If involved in a fire wear NIOSH/MSHA approved self-contained breathing apparatus, flame and chemical resistant protective clothing hat, gloves and boots to prevent contact with skin and eyes. If without risk move material out of fire area

Unusual Fire and Explosion Hazards: may emit toxic fumes if involved in a fire

Section 5: Reactivity Data

Stability: Stable

Conditions to Avoid: Not applicable

Incompatibility (Conditions to Avoid): Strong Acids and bases

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: May emit toxic fumes when heated to decomposition (strontium oxide, titanium oxide).

Section 6: Health Hazard Data

Routes of Entry :

Inhalation – Yes

Skin – Yes

Ingestion – Yes

Eye – Yes

Threshold Limit Value: Not established

Medical Conditions Generally Aggravated by Exposure: Pre-existing respiratory disorders.

Carcinogenicity: None listed

NTP – Not Listed

IARC Monograph – No

OSHA Regulated – No

Target Organs: No target organs for strontium titanate have been recorded.

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Health Hazards (Acute and Chronic):

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

Strontium compounds have a low order of toxicity. It is chemically and biologically similar to calcium. The oxides and hydroxides are moderately caustic materials. For titanium compounds, these materials are considered to be physiologically inert. There are no reported cases in the literature where titanium as such has caused intoxication. The dusts of titanium compounds such as titanium oxide may be placed in the nuisance category. (Sax, Dangerous Properties of Industrial Materials, sixth edition)

Inhalation:

Acute: May be a nuisance dust. May cause coughing and shortness of breath

Chronic: No chronic health effects recorded.

Ingestion:

Acute: No acute health effects recorded

Chronic: No chronic health effects recorded.

Skin:

Acute: May cause irritation.

Chronic: No chronic health effects recorded

Eyes:

Acute: May cause irritation.

Chronic: No chronic health effects recorded

Signs and Symptoms of Overexposure:

Inhalation: May cause sneezing, coughing and dry throat.

Ingestion: No acute or chronic health effects recorded.

Skin: May cause redness, itching.

Eyes: May cause redness, itching and watering.

Emergency and First Aid Procedures: Treat symptomatically

Eyes: Flush eyes with lukewarm water for 15 minutes. Seek medical attention.

Skin: Remove contaminated clothing. Brush material off skin and exposed area. Wash affected area with soap and water. Seek medical attention.

Inhalation: Remove victim to fresh air, keep warm and quiet, Administer oxygen if breathing is difficult. Seek medical attention

Ingestion: Give 1-2 glasses of milk or water and induce vomiting. Seek immediate medical attention.

Section 7: Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled: Wear a self-contained breathing apparatus and full protective clothing. Stop leak if without risk, cover spill with soda ash. Collect into a properly marked container and submit or retain for disposal or salvage.

Waste Disposal Method: In accordance with Local, State and Federal Waste Disposal Regulations.

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Section 8: Control Measures

Respiratory Protection (Specify Type): Wear NIOSH-approved dust mask for ordinary use and self-contained breathing apparatus for emergency use.

Ventilation: Local Exhaust: Maintain concentration at low exposure levels

Mechanical: Recommended

Protective Gloves: Neoprene; Rubber

Eye Protection: Safety Glasses

Other Protective Clothing or Equipment: Laboratory coat and apron. Eye wash fountain capable of sustained flushing. Safety drench shower, hygienic facilities for washing.

Other Handling and Storage Conditions:

1. Wash thoroughly after handling
2. Keep container tightly closed
3. Use adequate ventilation
4. Store away from acids.

Precautionary Labeling: WARNING! IRRITANT! DO NOT INHALE DUST! EYE CONTACT MAY CAUSE IRRITATION!

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