Material Safety Data Sheet

Niobium(V) Oxide MSDS

Section 1: Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Niobium(V) Oxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog Codes</td>
<td>21021</td>
</tr>
<tr>
<td>CAS#</td>
<td>1313-96-8</td>
</tr>
<tr>
<td>RTECS:</td>
<td>QU05000000</td>
</tr>
<tr>
<td>TSCA:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Synonym:</td>
<td>Diniobium pentoxide; Niobia; Niobium(5+)oxide; Niobium pentaoxide</td>
</tr>
<tr>
<td>Chemical Formula:</td>
<td>Nb2O5</td>
</tr>
<tr>
<td>Contact Information:</td>
<td>Finar Limited</td>
</tr>
<tr>
<td></td>
<td>184-186/P, Chacharwadi Vasna, Sarkhej-Bavla Highway, Ta.: Sanand, Dist.: Ahmedabad, Email: <a href="mailto:info@finarchemicals.com">info@finarchemicals.com</a> Web: <a href="http://www.finarchemicals.com">www.finarchemicals.com</a></td>
</tr>
</tbody>
</table>

Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niobium(V) Oxide</td>
<td>1313-96-8</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

Emergency Overview:
Appearance: off-white powder solid.
Caution! Causes respiratory tract irritation. Causes eye and skin irritation. May cause digestive tract irritation.
Target Organs: None known.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation.
Ingestion: May cause irritation of the digestive tract.
Inhalation: Causes respiratory tract irritation. Causes irritation of mucous membrane.
Chronic: No information found.

Section 4: First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Wash mouth out with water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.
Antidote: None reported.

**Section 5: Fire and Explosion Data**

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use agent most appropriate to extinguish fire.

**Flash Point:** Not available.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health:2 ; Flammability:0 ; Instability:0

**Section 6: Accidental Release Measures**

**General Information:**
Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**
Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation.

**Section 7: Handling and Storage**

**Handling:**
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

**Storage:**
Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed.

**Section 8: Exposure Controls/Personal Protection**

**Engineering Controls:** Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niobium(V) oxide</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Niobium(V) oxide: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Section 9: Physical and Chemical Properties**

**Physical State:** Solid

**Appearance:** off-white powder

**Odor:** Not available.

**pH:** Not available.

**Vapor Pressure:** Not available.

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.
Viscosity: Not available.
Boiling Point: Not available.
Freezing/Melting Point: 1520 deg C
Decomposition Temperature: Not available.
Solubility: Not available.
Specific Gravity/Density: 4.600
Molecular Formula: Nb2O5
Molecular Weight: 265.82

Section 10: Stability and Reactivity Data

Chemical Stability:
Stable under normal temperatures and pressures. Turns yellow when heated.

Conditions to Avoid:
Incompatible materials, dust generation, strong oxidants.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products:
Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, niobium oxides.

Hazardous Polymerization: Has not been reported

Section 11: Toxicological Information

RTECS#: CAS# 1313-96-8: QU0500000
RTECS:
LD50/LC50:
CAS# 1313-96-8: Oral, mouse: LD50 = >4 gm/kg;
Oral, mouse: LD50 = 4000 mg/kg;
Carcinogenicity: Niobium(V) oxide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12: Ecological Information

No information available.

Section 13: Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14: Transport Information

<table>
<thead>
<tr>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Name:</td>
<td>Not regulated as a hazardous material</td>
</tr>
<tr>
<td>Hazard Class:</td>
<td></td>
</tr>
<tr>
<td>UN Number:</td>
<td></td>
</tr>
<tr>
<td>Packing Group:</td>
<td></td>
</tr>
</tbody>
</table>

Section 15: Other Regulatory Information

US FEDERAL
TSCA
- CAS# 1313-96-8 is listed on the TSCA inventory.

Health & Safety Reporting List
- None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
- None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
- None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
- None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.

**SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

**Section 313** No chemicals are reportable under Section 313.

**Clean Air Act:**
- This material does not contain any hazardous air pollutants.
- This material does not contain any Class 1 Ozone depletors.
- This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**
- None of the chemicals in this product are listed as Hazardous Substances under the CWA.
- None of the chemicals in this product are listed as Priority Pollutants under the CWA.
- None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
- None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
- CAS# 1313-96-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**
- California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**
- Not available.

**Risk Phrases:**

**Safety Phrases:**
- S 24/25 Avoid contact with skin and eyes.

**WGK (Water Danger/Protection)**
- CAS# 1313-96-8: No information available.

**Canada - DSL/NDSL**
- CAS# 1313-96-8 is listed on Canada's DSL List.

**Canada - WHMIS**
- WHMIS: Not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

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### Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/06/2010

**Last Updated:** 24/11/2012

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