SAFETY DATA SHEET

1. Identification

Product identifier: NEODYMIUM OXIDE, 99.999%

Other means of identification

Product code: A5250

Recommended use: professional, scientific and technical activities: other professional, scientific and technical activities

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Company name: GFS Chemicals, Inc.
Address: P.O. Box 245 Powell OH 43065 US

Telephone:
- Phone: 740-881-5501
- Toll Free: 800-858-9682
- Fax: 740-881-5989

Website: www.gfschemicals.com
E-mail: service@gfschemicals.com
Emergency phone number: Emergency Assistance Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards: Not classified.

OSHA hazard(s): No hazards resulting from the material as supplied.

Label elements

- Hazard symbol: No symbol.
- Signal word: Not available.
- Hazard statement: Not available.
- Precautionary statement:
  - Prevention: Not available.
  - Response: Not available.
  - Storage: Not available.
  - Disposal: Not available.

Hazard(s) not otherwise classified (HNOC): Not classified.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-hazardous</td>
<td>NEODYMIUM OXIDE</td>
<td></td>
<td>1313-97-9</td>
<td>100</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation: If dust from the material is inhaled, remove the affected person immediately to fresh air. Call a physician if symptoms develop or persist.

Skin contact: Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact: Rinse with water. Get medical attention if irritation develops and persists.

Ingestion: Get medical advice/attention if you feel unwell.
Most important symptoms/effects, acute and delayed
Indication of immediate medical attention and special treatment needed

Not available.
Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media
Water. Use extinguishing agent suitable for type of surrounding fire.

Unsuitable extinguishing media
None known.

Specific hazards arising from the chemical
Not applicable.

Special protective equipment and precautions for firefighters
Wear suitable protective equipment.

Fire-fighting equipment/instructions
In the event of fire, cool tanks with water spray.

Specific methods
Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Avoid inhalation of dust from the spilled material.

Methods and materials for containment and cleaning up
The product is immiscible with water and will spread on the water surface. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Sweep up or vacuum up spillage and collect in suitable container for disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. Avoid the generation of dusts during clean-up. Following product recovery, flush area with water. For waste disposal, see section 13 of the MSDS.

Environmental precautions
No special environmental precautions required.

7. Handling and storage

Precautions for safe handling
Avoid dust formation. Do not breathe dust from this material. In case of insufficient ventilation, wear suitable respiratory equipment. Guard against dust accumulation of this material. Provide appropriate exhaust ventilation at places where dust is formed. Avoid contact with skin and eyes. Practice good housekeeping.

Conditions for safe storage, including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Avoid dust formation. Guard against dust accumulation of this material.

8. Exposure controls/personal protection

Occupational exposure limits
No exposure limits noted for ingredient(s).

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

Individual protection measures, such as personal protective equipment

Eye/face protection
Use tight fitting goggles if dust is generated.

Skin protection
Not normally needed.

Hand protection
Normal work clothing (long sleeved shirts and long pants) is recommended.

Other

Respiratory protection
Wear respirator with dust filter. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards
Not available.

General hygiene considerations
Do not breathe dust. Avoid contact with eyes. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance
Powder.

Physical state
Solid.

Form
Powder.

Color
Light blue.
Odor Odorless.
Odor threshold Not available.
pH Not available.
Melting point/freezing point 4208 °F (2320 °C)
Initial boiling point and boiling range Not available.
Flash point Not available.
Evaporation rate Not available.
Flammability (solid, gas) Not applicable.
Upper/lower flammability or explosive limits
   Flammability limit - lower (%) Not available.
   Flammability limit - upper (%) Not available.
   Explosive limit - lower (%) Not available.
   Explosive limit - upper (%) Not available.
Vapor pressure Not available.
Vapor density Not available.
Relative density Not available.
Solubility(ies) Insoluble
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature Not available.
Decomposition temperature Not available.
Viscosity Not available.
Other information
   Molecular formula Nd2O3
   Molecular weight 336.48
   Specific gravity 7.3

10. Stability and reactivity
Reactivity Not available.
Chemical stability Material is stable under normal conditions.
Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.
Conditions to avoid Avoid spread of dust.
Incompatible materials None known.
Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information
Information on likely routes of exposure
   Ingestion Due to lack of data the classification is not possible.
   Inhalation Inhalation of dusts may cause respiratory irritation.
   Skin contact Due to lack of data the classification is not possible.
   Eye contact Due to lack of data the classification is not possible.
Symptoms related to the physical, chemical and toxicological characteristics
Not available.
Information on toxicological effects
   Acute toxicity Not available.
   Skin corrosion/irritation Due to lack of data the classification is not possible.
   Serious eye damage/eye irritation Dust in the eyes will cause irritation.
Respiratory sensitization: Due to lack of data the classification is not possible.

Skin sensitization: Due to lack of data the classification is not possible.

Germ cell mutagenicity: Due to lack of data the classification is not possible.

Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity: Due to lack of data the classification is not possible.

Specific target organ toxicity - single exposure: Due to lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure: Due to lack of data the classification is not possible.

Aspiration hazard: Due to lack of data the classification is not possible.

Further information: This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity: No ecotoxicity data noted for the ingredient(s).

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulative potential: Not available.

Mobility in soil: Not available.

Other adverse effects: Not available.

13. Disposal considerations

Disposal instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Local disposal regulations: Not available.

Hazardous waste code: Not regulated.

Waste from residues / unused products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT: Not regulated as a hazardous material by DOT.

IATA: Not regulated as a dangerous good.

IMDG: Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: No information available.

15. Regulatory information

US federal regulations: CERCLA/SARA Hazardous Substances - Not applicable.

All components are on the U.S. EPA TSCA Inventory List.


Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories: Immediate Hazard - No

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance: No

SARA 311/312 Hazardous chemical: No
Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
Not regulated.

DEA Exempt Chemical Mixtures Code Number
Not regulated.

Food and Drug Administration (FDA)
Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
Not regulated.

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania RTK - Hazardous Substances
Not regulated.

US. Rhode Island RTK
Not regulated.

US. California Proposition 65
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
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<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
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<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
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<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
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<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date                  September-24-2013
Version #                   01
Further information         Not available.
Disclaimer                  The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a 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.

Revision Information        Product and Company Identification: Product and Company Identification