HALBLEITER MATERIAL

*Material Safety Data Sheet*

# Lithium Niobium Oxide Powder

Report No.: VIH240920017-1
Version: 2.1
Preparation Date: 20/09/2024
Revision Date: 20/09/2024

## 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

| | |
|---|---|
| Product Name | Lithium Niobium Oxide |
| Product No. | 03410800 |
| Formula | $LiNbO_3$ |
| CAS No. | 12031-63-9 |
| Synonyms | Lithium Niobate |

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| Identified uses | Laboratory chemicals, Scientific research |
| Uses advised against | Consulting manufacturers |

### 1.3 Details of the supplier of the safety data sheet

| | |
|---|---|
| Company Name | VI HALBLEITERMATERIAL GmbH |
| Street | Bergener Straße 14., |
| City | Hannover |
| State | Niedersachsen |
| Zip Code | 30625 |
| Country | Germany |
| Tel | 0049 1626484175 |
| Email | info@vimaterial.de |
| Website | https://vimaterial.de/ |

### 1.4 Emergency telephone number

| | |
|---|---|
| Emergency Phone # | 0049 1626484175 |

## 2. Hazards Identification

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP).

Not a hazardous substance or mixture.

### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Not a hazardous substance or mixture.

### 2.3 Other hazards

None.

## 3. Composition/information on ingredients

### 3.1 Substances

| | |
|---|---|
| Chemical Family | Ceramic |

| Component | CAS No. | EC No. | Concentration |
|---|---|---|---|
| Lithium niobium oxide ($LiNbO_3$) | 12031-63-9 | 234-755-4 | <=100% |

## 4. First aid measures

### 4.1 Description of first aid measures

| | |
|---|---|
| General Treatment | Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance |
| Inhalation | If breathed in, move person into fresh air. If not breathing, give artificial respiration. |
| Skin | Wash off with soap and plenty of water. |
| Eyes | Flush eyes with water as a precaution. |
| Ingestion | Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult doctor if feeling unwell. |

### 4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed, are included on labelling (Section 2.2) and in Section 11.

### 4.3 Indication of any immediate medical attention and special treatment needed

| | |
|---|---|
| 1 | Based on the symptoms that appear, provide targeted treatment. |
| 2 | Be aware that symptoms may be delayed. |

## 5. Firefighting Measures

### 5.1 Extinguishing Media

| | |
|---|---|
| Suitable extinguishing media | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
| Unsuitable extinguishing media | N/A |

### 5.2 Special hazards arising from the substance or mixture

| | |
|---|---|
| 1 | Lithium oxides |
| 2 | Niobium/niobium oxides |
| 3 | Thermal decomposition can lead to release of irritating gases and vapors. |

### 5.3 Advice for firefighters

| | |
|---|---|
| 1 | Wear self-contained breathing apparatus for firefighting if necessary. |
| 2 | Fight fire from a safe distance and with adequate protection. |
| 3 | Do not allow firefighting water to enter drains or water courses. |
| 4 | Collect contaminated firefighting water separately. |

## 6. Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| For non-emergency personnel | Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. |
| For emergency responders | Wear breathing apparatus if exposed to vapours/dust/spray/gases. |

### 6.2 Environmental Precautions

| | |
|---|---|
| 1 | Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. |

### 6.3 Methods and material for containment and cleaning up

| | |
|---|---|
| Advice on how to contain a spill | Covering of drains, Take up mechanically. |
| Advice on how to clean up a spill | Sweep up and shovel. Take care not to raise dust. |
| Other information relating to spills and releases | Place in appropriate containers for disposal. Ventilate affected area. |

### 6.4 Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## 7. Handling and Storage

### 7.1 Precautions for safe handling

| | |
|---|---|
| Recommendations | Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation. |
| Hygiene Measures | Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work. |

### 7.2 Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| Ventilation requirements | Keep containers tightly closed in a dry, cool and well-ventilated place. |
| Storage class (TRGS 510) | Class 13 |
| Incompatible materials | See Section 10.5 |

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## 8. Exposure Controls/Personal Protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

**Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice.

**Personal protective equipment**

**Eye/face protection**

Wear safety glasses with side shields (or goggles) (European standard - EN166) and face protection.

**Skin protection**

-Hand Protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

-Other protection measures
Wear appropriate protective gloves and clothing to prevent skin exposure. Wash hands thoroughly after handling.

**Respiratory Protection**
No protective equipment is needed under normal use conditions.

| | |
|---|---|
| **Large scale/emergency use** | Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced<br>Recommended Filter type: Particulates filter conforming to EN 143 |
| **Small scale/Laboratory use** | Maintain adequate ventilation. |

**Environmental exposure controls**
Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## 9. Physical and Chemical Characteristics

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| Physical State | Solid Crystalline |
| Colour | Off-white |
| Odor | Odorless |
| Melting Point/Range | 1275 °C |
| Boiling Point/Range | No data available |
| Flammability (liquid) | Not applicable |
| Flammability (solid, gas) | No data available |
| Explosion limits | No data available |
| Flash Point | No data available |
| Autoignition Temperature | No data available |
| Decomposition Temperature | No data available |
| pH | No data available |
| Viscosity | Not applicable |
| Water Solubility | No data available |
| Solubility in other solvents | No data available |
| Partition Coefficient (n-octanol/water) | No data available |
| Vapor Pressure | No data available |

| | |
|---|---|
| Density / Specific Gravity | 4.3 g/cm$^3$ |
| Vapor Density | Not applicable |
| Particle characteristics | No data available |

### 9.2 Other information

| | |
|---|---|
| Molecular formula | $LiNbO_3$ |
| Molecular weight | 147,85 g/mol |
| Evaporation Rate | No data available |

## 10. Stability and reactivity

### 10.1 Reactivity

None known, based on information available.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

**Hazardous Polymerization:** No information available

**Hazardous Reactions:** No information available

### 10.4 Conditions to avoid

No information available.

### 10.5 Incompatible materials

Oxidizing agent.

### 10.6 Hazardous decomposition products

Other Decomposition Products - Lithium oxide. Niobium oxides;

In the event of fire: see section 5.

## 11. Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

| | | |
|---|---|---|
| Acute toxicity | Oral: | No data available. |
| | Dermal: | No data available. |
| | Inhalation: | No data available. |
| Skin corrosion/irritation | No data available. | |
| Serious eye damage/irritation | No data available. | |
| Respiratory or skin | Respiratory | No data available. |

| | | |
|---|---|---|
| sensitization | Skin | No data available. |
| Germ cell mutagenicity | No data available. | |
| Carcinogenicity | No data available. | |
| Reproductive toxicity | No data available. | |
| STOT - single exposure | No data available. | |
| STOT - repeated exposure | No data available. | |
| Aspiration hazard | Not applicable. Solid | |

### 11.2 Information on other hazards

**Endocrine Disrupting Properties:** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## 12. Ecological Information

### 12.1 Toxicity

| | |
|---|---|
| Toxicity | No data available. |

### 12.2 Persistence and degradability

| | |
|---|---|
| Persistence | No data available. |
| Degradability | No data available. |

### 12.3 Bioaccumulative potential

| | |
|---|---|
| Bioaccumulative potential | No data available. |

### 12.4 Mobility in soil

| | |
|---|---|
| Mobility in soil | No data available. |

### 12.5 Results of PBT and vPvB assessment

| | |
|---|---|
| Results of PBT and vPvB assessment | In accordance with Annex XIII of the REACH Regulation, this substance does not meet the criteria for classification as a PBT or a vPvB. |

### 12.6 Endocrine disrupting properties

| | |
|---|---|
| Endocrine Disruptor Information | This product does not contain any known or suspected endocrine disruptors. |

### 12.7 Other adverse effects

| | |
|---|---|
| Persistent Organic Pollutant | This product does not contain any known or suspected substance |

| | |
|---|---|
| Ozone Depletion Potential | This product does not contain any known or suspected substance |

## 13. Disposal Considerations

### 13.1 Waste treatment methods

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

## 14. Transport information

**IMDG**

| | |
|---|---|
| **14.1. UN number** | Not applicable |
| **14.2. UN Proper shipping name** | Not classified as hazardous for transport. |
| **14.3. Transport hazard class(es)** | Not applicable |
| **14.4. Packaging group** | Not applicable |

**ADR/RID/ADN**

| | |
|---|---|
| **14.1. UN number** | Not applicable |
| **14.2. UN Proper shipping name** | Not classified as hazardous for transport. |
| **14.3. Transport hazard class(es)** | Not applicable |
| **14.4. Packaging group** | Not applicable |

**ICAO-IATA/DGR**

| | |
|---|---|
| **14.1. UN number** | Not applicable |
| **14.2. UN Proper shipping name** | Not classified as hazardous for transport. |
| **14.3. Transport hazard class(es)** | Not applicable |
| **14.4. Packaging group** | Not applicable |
| **14.5. Environmental hazards** | No hazards identified |
| | |
| **14.6. Special precautions for user** | No special precautions required |
| | |
| **14.7. Maritime transport in bulk according to IMO instruments** | Not applicable, packaged goods |

## 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH Annex XIV (Authorisation List): Not listed.
Candidate List of Substances of Very High Concern (SVHC) under REACH Article 59: Not listed.
REACH Annex XVII (Restrictions): Not listed.
Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals: Not applicable.
Contains per- and polyfluoroalkyl substances (PFAS): No.
Directive 98/24/EC (Chemical Agents Directive): Applicable where occupational exposure occurs.

TRGS 900 (Technical Rules for Hazardous Substances - Occupational Exposure Limits):
No substance-specific AGW has been established. General dust limits apply:

- Inhalable dust: 10 mg/$m^3$
- Respirable dust: 1,25 mg/$m^3$

TA Luft: Not specifically classified.
Water hazard class (WGK): No official classification available according to AwSV.

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## 16. Other information

**Revision information**

| | |
|---|---|
| Preparation date | 20/09/2024 |
| Revision date | 20/09/2024 |
| Revision reason | Update. |

**Abbreviations and acronyms**

| | |
|---|---|
| CAS | Chemical Abstracts Service |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| RID | Regulation concerning the International Carriage of Dangerous Goods by Rail |
| IATA | International Air Transportation Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Lethal Concentration 50% |
| LD50 | Lethal Dose 50% |
| TWA | Time Weighted Average |

| | |
|---|---|
| STOT | Specific target organ toxicity |
| PBT | Persistent, Bioaccumulative, Toxic |
| vPvB | Very Persistent, very Bioaccumulative |
| WEL | Workplace exposure limit |

**References**


[1] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

[2] ECHA - European Chemicals Agency, website: https://echa.europa.eu/

[3] eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

[4] Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

[5] HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

[6] IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

[7] IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

[8] ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg


**List of relevant phrases (code and full text as stated in chapter 2 and 3)**

N/A

**Disclaimer**

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products. For further information please contact info@vimaterial.de.