

CANON OPTRON INC.

SDS Number: EN01
Product Name: Nb2O5

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
Revised Date 2022/10/3

SECTION 1 Chemicals and company identification

| | |
|----------------------------|---|
| Product name | Nb2O5 |
| Product code | EN01 |
| Company name | CANON OPTRON INC. |
| Address | 1744-1, Kanakubo, Yuki-shi, Ibaraki-ken, 307-0015 Japan |
| Section name | Sales Department |
| Telephone number | +81-296-21-3700 |
| Fax number | +81-296-21-3770 |
| Emergency telephone number | +81-296-21-3700 |
| Use | Vacuum deposition material |

SECTION 2 Hazards identification

GHS Classification (A classification by JIS Z 7252 "classification methods such as chemical substances based on GHS")

No data available

Label element

| | |
|------------------------------------|-------------------|
| hazard Pictograms | No data available |
| Signal word | No data available |
| Dangerous goods hazard information | No data available |

Precautionary statement

| | |
|----------------------|---|
| 【Safety measures】 | Obtain special instructions before use. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapours/spray. |
| 【First-aid measures】 | If swallowed: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes.Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call poison center or doctor/physician |
| 【Storage】 | Store in a well-ventilated place, keep container tightly closed. Store locked up. |
| 【Disposal】 | Dispose of contents/container in accordance with national regulations. |
| 【Other hazards】 | - |

CANON OPTRON INC.

SDS Number: EN01
Product Name: Nb2O5

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
Revised Date 2022/10/3

SECTION 3 Composition/information on ingredients

| Substance/Mixture | Substance |
|--------------------------------------|--|
| Chemical name | <i>Niobium oxide</i> |
| Chemical formula | <i>Nb2O5</i> |
| Concentration or concentration range | 99.9< |
| CAS No. | 1313-96-8 |
| TSCA Inventory | <i>Niobium oxide (Nb2O5)</i> |
| EINECS number | <i>215-13-6</i> |
| Radioactive information | Radioactive substances are not used as the material. Therefore, there is no reason that ionizing radiation would be generated. |

SECTION 4 First aid measures

| | |
|---|--|
| Inhalation | Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell. |
| Skin contact | Take off immediately all contaminated clothing. Rinse affected areas with water/shower. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: : Get medical advice/attention. |
| Eye contact | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| Ingestion | Rinse mouth. Get medical advice/attention. |
| Most important symptoms and effects, both acute and delayed | No data available |
| Protection of first aiders | Rescuers, wear suitable protective equipment as the situation demands. |
| Special precautions for physicians | No data available |

SECTION 5 Firefighting measures

| | |
|---|--|
| Suitable extinguishing media | This product itself is not flammable. |
| Unsuitable extinguishing media | No data available |
| Specific hazards | No data available |
| Specific extinguishing methods | In the case of a fire in the periphery, the portable container is quickly moved to a safe place. |
| Special protective equipment for firefighters | Wear suitable protective equipment (gloves, glasses and a mask) in fire-fighting. |

CANON OPTRON INC.

SDS Number: EN01
Product Name: Nb2O5

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
Revised Date 2022/10/3

SECTION 6 Accidental release measures

| | |
|--|--|
| Personal precautions, protective equipment, and emergency procedures | Protection equipment (specified as those in which the properties of the product are suitable) worn during operation so that airborne droplets, etc., do not adhere to the skin and dusts and gases are not absorbed. |
| Environmental precautions | The leakage may not directly flow into rivers or sewage. |
| Methods and material for containment and cleaning up | The leaked material is scooped up, or swept up and gathered to be recovered in a paper bag or a drum. After recovery, a small amount of the residue is absorbed in sediment, sawdust, etc. |
| Secondary disaster prevention measures | No data available |

SECTION 7 Handling and storage

| | |
|--|---|
| Precautions for safe handling | |
| Technical measures | Take measures for equipment as described in “8. Exposure controls/personal protection” and wear protective equipment. |
| Safety handling precautions | Handling work must be practiced in a room where there is a local or total ventilation facility. |
| Avoidance of contact | Refer to “10. Stability and reactivity.” |
| Hygiene measures | Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. |
| Conditions for safe storage, including any incompatibilities | |
| Safe storage conditions | Store in a well-ventilated place. Keep container tightly closed. |
| Safety packaging material | No data available |

SECTION 8 Exposure controls/personal protection

Nb2O5

| | |
|---|--|
| Permissible concentration | |
| ACGIH | No data available |
| Appropriate engineering controls | Use sealed devices, equipment, or a local exhaust ventilation as much as possible. |
| Individual protection measures, such as personal protective equipment | |
| Respiratory protection | Dustproof mask |
| Hand protection | Protective gloves |
| Eye/face protection | Dust-proof glasses |
| Skin protection | Protective clothing |

CANON OPTRON INC.

SDS Number: EN01
 Product Name: Nb₂O₅

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
 Revised Date 2022/10/3

SECTION 9 Physical and chemical properties

Appearance

| | |
|----------------|----------|
| Physical state | Solid |
| Form | Granular |
| Colour | White |
| Odour | None |

Nb₂O₅

| | |
|--|-------------------|
| Melting point/freezing point | 1520°C |
| Boiling point or initial boiling point and boiling range | No data available |
| Flammability | No data available |
| Upper/lower flammability or explosive limits | No data available |
| Flash point | No data available |
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| pH | No data available |
| Kinematic viscosity | No data available |
| Solubility | |
| Water | Insoluble |
| Other solvents | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Vapour pressure | No data available |
| Density and/or relative density | 4.6 |
| (Density) | |
| Relative vapor density | No data available |
| Particle characteristics | No data available |
| Other information | No data available |

SECTION 10 Stability and reactivity

Nb₂O₅

| | |
|--------------------|---|
| Reactivity | No data available |
| Chemical stability | It is stable in storage conditions and normal handling. |

CANON OPTRON INC.

SDS Number: EN01
Product Name: Nb2O5

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
Revised Date 2022/10/3

| | |
|------------------------------------|--|
| Possibility of hazardous reactions | <i>It is soluble in water when dissolved with alkali hydroxide or alkali carbonate, but hydrolyzes to produce niobic acid precipitation.</i> |
| Conditions to avoid | <i>No data available</i> |
| Incompatible materials | <i>No data available</i> |
| Hazardous decomposition products | <i>No data available</i> |

SECTION 11 Toxicological information

Nb2O5

| | |
|---|--|
| Acute toxicity(oral) | <i>Oral – Rat LD:\geq 10g/kg Intraperitoneal – rat LD:\geq 10g/kg, Oral – Mouse LD50:\geq 4g/kg Intraperitoneal – mouse LD:\geq 10g/kg</i> |
| Acute toxicity(dermal) | <i>No data available</i> |
| Acute toxicity (Inhalation: Gases) | <i>If inhaled, to stimulate the respiratory system and mucous membranes.</i> |
| Acute toxicity (Inhalation: Vapours) | <i>No data available</i> |
| Acute toxicity (Inhalation: Dusts and mists) | <i>No data available</i> |
| Skin corrosion/irritation | <i>No data available</i> |
| Serious eye damage/irritation | <i>No data available</i> |
| Respiratory or skin sensitization | <i>No data available</i> |
| Germ cell mutagenicity | <i>No data available</i> |
| Carcinogenicity | <i>No data available</i> |
| Reproductive toxicity | <i>No data available</i> |
| Specific target organ toxicity(single exposure) | <i>No data available</i> |
| Specific target organ toxicity(repeated exposure) | <i>No data available</i> |
| Aspiration hazard | <i>No data available</i> |
| Other information | <i>No data available</i> |

SECTION 12 Ecological information

Nb2O5

| | |
|--|---|
| <p>Toxicity</p> <p>Hazardous to the aquatic environment Short-term(acute)</p> <p>Hazardous to the aquatic environment Long-term(chronic)</p> | <p><i>No data available</i></p> <p><i>No data available</i></p> |
|--|---|

CANON OPTRON INC.

SDS Number: EN01
 Product Name: Nb2O5

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
 Revised Date 2022/10/3

| | |
|-------------------------------|--------------------------|
| Persistence and degradability | <i>No data available</i> |
| Bioaccumulative potential | <i>No data available</i> |
| Mobility in soil | <i>No data available</i> |
| Hazard to the ozone layer | <i>No data available</i> |
| Other adverse effects | <i>No data available</i> |

SECTION 13 Disposal considerations

| | |
|---|--|
| Waste treatment methods | Process is contracted to industrial waste disposers who received approval of a prefectural governor. |
| Contaminated container and contaminated packaging | The container is recycled after being cleaned, or is appropriately processed according to the standards of related laws and regulations. When disposing of empty containers, the contents should be completely removed. |

SECTION 14 Transport information

Nb2O5

| | |
|---|--------------------------|
| International regulation | |
| UN number | <i>Not applicable</i> |
| UN proper shipping name | <i>Not applicable</i> |
| UN classification | <i>Not applicable</i> |
| Transport hazard class | <i>Not applicable</i> |
| Packing group | <i>Not applicable</i> |
| Hazardous to the aquatic environment | <i>No data available</i> |
| Maritime transport in bulk according to IMO instruments | <i>No data available</i> |
| Japanese laws and regulations | <i>No data available</i> |
| Special precautions for users | <i>No data available</i> |
| Special Provisions | — |

SECTION 15 Regulatory information (Japan)

Nb2O5

| | |
|--|--------------------------|
| Occupational Safety and Health Law | <i>No data available</i> |
| PRTR Law | <i>No data available</i> |
| Poisonous and Deleterious Substances control Law | <i>No data available</i> |
| Labor Standards Act | <i>No data available</i> |
| Chemical substances control Law | <i>No data available</i> |

CANON OPTRON INC.

SDS Number: EN01
Product Name: Nb2O5

SAFETY DATA SHEET

rev. 7.2 Date of Issue 2014/9/1
Revised Date 2022/10/3

| | |
|--|--|
| Fire fighting Law | No data available |
| Air Pollution Control Act | No data available |
| Water Pollution Prevention Act | No data available |
| Water Supply Act | No data available |
| Sewerage Act | No data available |
| Marine Pollution Prevention Law | No data available |
| Waste Management and Public Cleansing Act | No data available |
| Note | Ensure this material in compliance with federal requirements and ensure conformity to local regulations. |

SECTION 16 Other information

The Safety Data Sheet (SDS) has been prepared based on currently available materials, information and data, and may be revised based on new information. Further, the important points in the SDS are made for the purpose of normal handling. When handling the user product in a specialized manner, take the appropriate safety measures for the application or method. Further, Canon Optron Inc. has paid sufficient attention to the described contents of the SDS, but does not guarantee the accuracy of its contents.

The SDS prepared by our company includes all findings from our investigation for reference. Not applicable to all items listed.

Literature Reference

[WEB site]

National Institute of Technology and Evaluation Homepage
Japan Advanced Information Center of Safety and Health Homepage
Ministry of Health, Labour and Welfare Homepage

[Regulatory review Tools]

ezCRIC (Japan Chemical Database Ltd)