



# SAFETY DATA SHEET

**MATERION**

## 1. Identification

<b>Product identifier</b>	<b>Niobium Powder</b>
<b>Other means of identification</b>	
SDS number	H06
CAS number	7440-03-1
Synonyms	C103
<b>Recommended use</b>	Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment
<b>Recommended restrictions</b>	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)

## Manufacturer/Importer/Supplier/Distributor information

### Manufacturer

<b>Company name</b>	Materion Newton Inc.
<b>Address</b>	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States
<b>Telephone</b>	1+216.383.4019
<b>Website</b>	www.materion.com
<b>E-mail</b>	ehs@materion.com
<b>Contact person</b>	Theodore Knudson
<b>Emergency phone number</b>	See Section 16.
<b>Supplier</b>	See above.

## 2. Hazard identification

<b>Physical hazards</b>	Flammable solids	Category 2
<b>Health hazards</b>	Not classified.	
<b>Environmental hazards</b>	Not classified.	

### Label elements



<b>Signal word</b>	Danger
<b>Hazard statement</b>	Flammable solid.
<b>Precautionary statement</b>	
<b>Prevention</b>	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Wear protective gloves/eye protection/face protection.
<b>Response</b>	In case of fire: Use appropriate media to extinguish. Wash hands after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Other hazards</b>	None known.
<b>Supplemental information</b>	For further information, please contact the Product Stewardship Department at +1.216.383.4019.

### 3. Composition/information on ingredients

#### Substances

Chemical name	Common name and synonyms	CAS number	%
Niobium Powder	C103	7440-03-1	100

### 4. First-aid measures

<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. Consult a physician for specific advice.
<b>Skin contact</b>	Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Flush eyes with water as a precaution.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth. Consult a physician.
<b>Most important symptoms/effects, acute and delayed</b>	None known.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Treat symptomatically. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Consult a physician. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water spray, fog, CO2, dry chemical, or alcohol resistant foam.
<b>Unsuitable extinguishing media</b>	None.
<b>Specific hazards arising from the chemical</b>	Niobium oxides.
<b>Special protective equipment and precautions for firefighters</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear suitable protective equipment. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In the event of fire, wear self-contained breathing apparatus.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In the event of fire and/or explosion do not breathe fumes.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Evacuate the area promptly. Avoid inhalation of dust and vapors. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. For waste disposal, see section 13 of the SDS.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Do not allow to enter drains, sewers or watercourses.

### 7. Handling and storage

<b>Precautions for safe handling</b>	Avoid formation of dusts and aerosols. Combustible dust clouds may be created where operations produce fine material (dust). Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Storage class (TRGS 510): 4.2 (Pyrophoric or self-heating substances) Keep container tightly closed in a cool, well-ventilated place. Keep container dry. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

<b>Occupational exposure limits</b>	No exposure limits noted for ingredient(s).
<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Exposure guidelines</b>	This material does not have established exposure limits.
<b>Appropriate engineering controls</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Ensure adequate ventilation, especially in confined areas.  
General ventilation normally adequate.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.

#### Skin protection

**Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.

**Other** Flame retardant protective clothing is recommended.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** Do not get in eyes. When using do not smoke. Wash hands before breaks and immediately after handling the product. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

## 9. Physical and chemical properties

### Appearance

**Physical state** Solid.

**Form** Powder

**Color** Grey.

**Odor** None.

**Odor threshold** Not applicable.

**pH** Not applicable.

**Melting point/freezing point** 4474.4 °F (2468 °C) / Not applicable.

**Initial boiling point and boiling range** Not applicable.

**Flash point** Not applicable.

**Evaporation rate** Not applicable.

**Flammability (solid, gas)** None known.

### Upper/lower flammability or explosive limits

**Explosive limit - lower (%)** Not applicable.

**Explosive limit - lower (%) temperature** Not applicable.

**Explosive limit - upper (%)** Not applicable.

**Explosive limit - upper (%) temperature** Not applicable.

**Vapor pressure** Not applicable.

**Vapor density** Not applicable.

**Relative density** Not applicable.

<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble.
<b>Partition coefficient (n-octanol/water)</b>	Not applicable.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not applicable.
<b>Viscosity</b>	Not applicable.
<b>Other information</b>	
<b>Density</b>	8.57 g/cm <sup>3</sup> at 25°C
<b>Molecular formula</b>	Nb
<b>Molecular weight</b>	92.91 g/mol

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Risk of ignition. Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials. Heat, flames and sparks.
<b>Incompatible materials</b>	Strong bases. Strong oxidizing agents. Halogens. Oxygen.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Not likely, due to the form of the product.
<b>Skin contact</b>	Not likely, due to the form of the product.
<b>Eye contact</b>	Dust may irritate the eyes.
<b>Ingestion</b>	Expected to be a low ingestion hazard.

<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	None known.
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### Information on toxicological effects

<b>Acute toxicity</b>	None known.
<b>Skin corrosion/irritation</b>	Not classified.
<b>Serious eye damage/eye irritation</b>	Not likely, due to the form of the product.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	Not a skin sensitizer.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	Not classified.
<b>Reproductive toxicity</b>	Not classified.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Chronic effects</b>	No data recorded.

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

## 12. Ecological information

**Ecotoxicity** Not expected to be harmful to aquatic organisms.

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

**Bioaccumulative potential** No data available.

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose in accordance with all applicable regulations. Dispose of contents/container (in accordance with related regulations). When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**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** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### TDG

**UN number** UN3089  
**UN proper shipping name** METAL POWDER, FLAMMABLE, N.O.S.  
**Transport hazard class(es)**  
**Class** 4.1  
**Subsidiary risk** -  
**Packing group** II  
**Environmental hazards** Not available.  
**Special precautions for user** Not available.

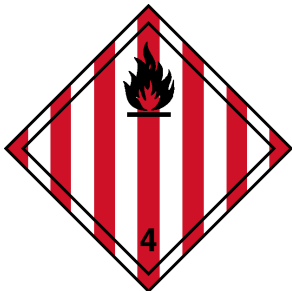
### IATA

**UN number** UN3089  
**UN proper shipping name** Metal powder, flammable, n.o.s.  
**Transport hazard class(es)**  
**Class** 4.1  
**Subsidiary risk** -  
**Packing group** II  
**Environmental hazards** No.  
**ERG Code** 3L  
**Special precautions for user** Not available.  
**Other information**  
**Passenger and cargo aircraft** Allowed with restrictions.  
**Cargo aircraft only** Allowed with restrictions.

## IMDG

UN number	UN3089
UN proper shipping name	METAL POWDER, FLAMMABLE, N.O.S.
Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-G, S-G
Special precautions for user	Not available.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

## IATA; IMDG; TDG



## 15. Regulatory information

### Canadian regulations

#### Controlled Drugs and Substances Act

Not regulated.

#### Export Control List (CEPA 1999, Schedule 3)

Not listed.

#### Greenhouse Gases

Not listed.

#### Precursor Control Regulations

Not regulated.

### International regulations

#### Stockholm Convention

Not applicable.

#### Rotterdam Convention

Not applicable.

#### Kyoto protocol

Not applicable.

#### Montreal Protocol

Not applicable.

#### Basel Convention

Not applicable.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

<b>Issue date</b>	05-12-2022
<b>Version #</b>	01
<b>Further information</b>	Transportation Emergency Call Chemtrec at: US: 800.424.9300 International: 703.741.5970 Spain: 900.868.538 Switzerland: 0800.564.402 Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059 South Korea Toll-free Number – 080-880-0468

## References

ACGIH  
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices  
EPA: AQUIRE database  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)  
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)  
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)  
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)  
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)  
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)  
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)  
Korea. Prohibited Chemical Substances (TCCL Article 11)  
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)  
Korea. Restricted Chemical Substances (TCCL Article 11)  
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)  
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List  
Korea. Toxic Chemicals (TCCL Article 10)  
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)  
Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)  
Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)  
Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)  
Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)  
Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)  
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits  
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012  
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"  
JIS Z 7253:2012 Hazard communication of chemicals based on GHS – Labelling and Safety Data Sheet (SDS)  
GOST 30333-2007 Chemical production safety passport. General requirements.  
GOST 31340-2013 Labeling of chemicals. General requirements.  
GOST 32419-2013 Classification of chemical products. General requirements.  
GOST 32424-2013 Classification of chemicals for environmental hazards. General principles.  
GOST 12.1.007-76 Occupational safety standard system. Noxious substances. Classification and general safety requirements.  
GOST 12.1.044-89. Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of substances and materials. Nomenclature of indices and methods of their determination.  
GOST 19433-88. Dangerous goods. Classification and marking.  
GOST 12.1.004-91. Occupational safety standards system. Fire safety. General requirements.



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