

Material Safety Data Sheet

acc. to OSHA and ANSI

• 1 Identification of substance:

• Product details:

• Product name: Palladium-Nickel-Phosphorous Alloy Disk

• Stock number: 0001D

• Manufacturer/Supplier:

Nanostructured & Amorphous Materials, Inc.

16840 Clay Road, Suite #113

Houston, TX 77084, USA

• 2 Composition/Data on components:

• Chemical characterization:

Description: (CAS#)

Palladium (CAS# 7440-05-3), 58.9%

Nickel (CAS# 7440-02-0), 32.5%

Phosphorous (CAS# 7723-14-0), 8.6%

• Identification number(s):

• EINECS Number: 231-115-6 (Palladium)

231-111-4 (Nickel)

231-768-7 (Phosphorous)

• 3 Hazards identification

• Hazard description: • Not applicable

• Information pertaining to particular dangers for man and environment
Not applicable

• Classification system

• HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 0
Flammability = 0
Reactivity = 0

• **4 First aid measures**

- **General information** No special measures required.
- **After inhalation** Seek medical treatment in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing** Seek medical treatment.

• **5 Fire fighting measures**

- **Suitable extinguishing agents**
Product is not flammable. Use fire fighting measures that suit the surrounding fire.
- **Protective equipment:** No special measures required.

• **6 Accidental release measures**

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:**
Do not allow material to be released to the environment without proper governmental permits.
- **Measures for cleaning/collecting:** Pick up mechanically.
- **Additional information:**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

• **7 Handling and storage**

- **Handling**
- **Information for safe handling:**
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
No special precautions are necessary if used correctly.

- **Information about protection against explosions and fires:**
No special measures required.
Fine powder: highly flammable
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

• **8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**
No further data; see item 7.

Components with limit values that require monitoring at the workplace:
Not required.

- **Additional information:** No data
- **Personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Not required.
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

• **9 Physical and chemical properties:**

- **General Information**

- **Form:** Disk
- **Color:** Steel White
- **Odor:** Odorless

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
• Change in condition			
• Melting point/Melting range:		~ 700 °C	
• Boiling point/Boiling range:			Not determined
• Sublimation temperature / start:			Not determined
• Flash point:			Not applicable

- **Flammability (solid, gaseous)** Product is not flammable.
- **Ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **Danger of explosion:**
Product does not present an explosion hazard.
- **Explosion limits:**
- **Lower:** Not determined
- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Density:** at 20 ° C 9.40 g/cm³
- **Solubility in / Miscibility with**
- **Water:** Insoluble

• **10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:**
Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:**
Oxidizing agents
Acids
Bases
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** Metal oxide fume

• **11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Powder: irritant effect
- **on the eye:** Powder: irritant effect
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
Palladium/palladium compounds have caused bone marrow, liver and kidney damage in experimental animals. Other animal experiments indicate that it may interfere with the use of energy by nerves and muscles, induce lung malfunctions and produce abnormal fetuses.

- **Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

- **12 Ecological information:**

- **General notes:**

Do not allow material to be released to the environment without proper governmental permits.

- **13 Disposal considerations**

- **Product:**

- **Recommendation**

Consult state, local or national regulations to ensure proper disposal.

- **Uncleaned packagings:**

- **Recommendation:**

Disposal must be made according to official regulations.

- **14 Transport information**

Not a hazardous material for transportation.

- **DOT regulations:**

- **Hazard class:** None

- **Land transport ADR/RID (cross-border)**

- **ADR/RID class:** None

- **Maritime transport IMDG:**

- **IMDG Class:** None

- **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** None

- **Transport/Additional information:**

Not dangerous according to the above specifications.

- **15 Regulations**

- **Product related hazard informations:**

Observe the general safety regulations when handling chemicals

- **National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

- **Information about limitation of use:**

For use only by technically qualified individuals.

- **16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.