Safety Data Sheet (SDS)

Product Name: Magnesium-Doped Nickel Oxide (Mg:NiO) Nanoparticles
Date of Issue: March 4, 2025
Manufacturer: Puissant Materials

Section 1: Identification

- Product Identifier: Mg-doped NiO Nanoparticles
- Recommended Use: Research and industrial applications (e.g., photocatalysis, sensors).
- Restrictions on Use: Not for food, drug, or cosmetic applications.
- Emergency Contact: [Insert company-specific emergency contact information]

Section 2: Hazard Identification

- Classification:
    - Eye Irritation: Category 2A
    - Skin Irritation: Category 2
    - Specific Target Organ Toxicity (Repeated Exposure): Category 2
- Signal Word: Warning
- Hazard Statements:
    - Causes skin and eye irritation.
    - May cause damage to organs through prolonged or repeated exposure.
- Precautionary Statements:
    - Avoid inhalation of dust or fumes.
    - Wear protective gloves, clothing, and eye protection.

Section 3: Composition/Information on Ingredients

Component	CAS Number	Weight %
Nickel Oxide (NiO)	1313-99-1	~95%

Magnesium (Mg)	7439-95-4	~5%

Section 4: First-Aid Measures

- Inhalation: Move to fresh air. Seek medical attention if symptoms persist.
- Skin Contact: Wash with soap and water. Remove contaminated clothing. Seek medical advice if irritation occurs.
- Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.
- Ingestion: Rinse mouth with water. Do not induce vomiting unless directed by medical personnel.

Section 5: Fire-Fighting Measures

- Suitable Extinguishing Media: Use water spray, dry chemical, foam, or CO_2 extinguishers.
- Specific Hazards Arising from the Chemical: May emit toxic fumes of nickel oxides when heated.
- Protective Equipment for Firefighters: Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Section 6: Accidental Release Measures

- Avoid dust formation and ensure adequate ventilation. Sweep up material carefully and place in a suitable container for disposal following local regulations.

Section 7: Handling and Storage

- Handle in a well-ventilated area with appropriate personal protective equipment (PPE). Avoid contact with skin and eyes. Store in a cool, dry place away from incompatible materials like strong acids or bases.

Section 8: Exposure Controls/Personal Protection

Component	OSHA PEL	ACGIH TLV	NIOSH REL

Nickel Oxide	1 mg/m³	0.2 mg/m³	0.015 mg/m³

- Engineering Controls: Use local exhaust ventilation to minimize exposure.
- PPE Requirements: Safety goggles, gloves, lab coat, and respiratory protection if airborne concentrations exceed limits.

Section 9: Physical and Chemical Properties

Property	Value
Appearance	Greenish-black powder
Odor	Odorless
Melting Point	~1955°C
Solubility	Insoluble in water

Section 10: Stability and Reactivity

- Stable under normal conditions of use and storage. Avoid contact with strong acids or bases that may cause decomposition.

Section 11: Toxicological Information

- May cause respiratory irritation upon inhalation of dust particles. Prolonged exposure to nickel compounds has been associated with potential carcinogenic effects.

Section 12: Ecological Information *(Optional)*

Limited data available; avoid release into the environment.

Section 13: Disposal Considerations

Dispose of in accordance with local, regional, and national regulations.

Section 14: Transport Information

Not classified as hazardous under transport regulations.
This SDS is a general template based on known properties of Mg-doped NiO nanoparticles and should be customized further with specific manufacturing details from Puissant Materials.

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