



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	Nickelous Oxide, Green
Version #	02
Revision date	01-18-2012
CAS #	1313-99-1
Product Codes	J.T.Baker: 2795, 2796, 5309 Macron: IM5309, IM9005
Synonym(s)	Nickel (II) Oxide; Nickel Monoxide
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER Cancer hazard - can cause cancer. Harmful if inhaled. May cause an allergic skin reaction. Product dust may be irritating to eyes, skin and respiratory system. Prolonged or repeated exposure may cause lung injury.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Skin contact. Eye contact. Ingestion.
Eyes	Dust or powder may irritate eye tissue. If irritation should occur, it is expected to be transient.
Skin	Dust or powder may irritate the skin. This product may cause an allergic skin reaction.
Inhalation	Harmful if inhaled. Inhalation of dusts may cause respiratory irritation.
Ingestion	Expected to be a low ingestion hazard. May cause temporary irritation of the throat, stomach, and gastrointestinal tract.
Target organs	Skin. Respiratory system.
Chronic effects	Contains nickel, which can cause lung or nasal cancer. Long-term breathing of this material may cause chronic lung disease.
Potential environmental effects	May cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
NICKEL OXIDE	1313-99-1	90 - 100

4. First Aid Measures

First aid procedures	
Eye contact	Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention if irritation develops and persists.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse.

Inhalation Move to fresh air. Treat symptomatically. Get medical attention.

Ingestion Seek medical advice. If ingestion of a large amount does occur, call a poison control center immediately.

Notes to physician Treat symptomatically.

General advice 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

Flammable properties This product is not flammable.

Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media None known.

Protection of firefighters

Protective equipment and precautions for firefighters Firefighters should wear full protective gear. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Special protective equipment for fire-fighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions Keep unnecessary personnel away. Keep upwind. Ventilate the area. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods for containment If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up Avoid dust formation.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Large Spills: Collect dust or particulates using a vacuum cleaner with a HEPA filter. Reduce airborne dust and prevent scattering by moistening with water.

Never return spills in original containers for re-use. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling Keep formation of airborne dusts to a minimum. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage Keep container tightly closed. Store in a well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH

Material	Type	Value	Form
Nickelous Oxide, Green (1313-99-1)	TWA	0.2000 mg/m3	Inhalable fraction

Occupational exposure limits

U.S. - OSHA

Material	Type	Value
Nickelous Oxide, Green (1313-99-1)	TWA	1.0000 mg/m3

Engineering controls	Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.
Personal protective equipment	
Eye / face protection	Use tight fitting goggles if dust is generated.
Skin protection	Wear suitable protective clothing and gloves.
Respiratory protection	Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.
General hygiene considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Crystalline.
Color	Green.
Odor	Odorless.
Odor threshold	Not available.
Physical state	Solid.
Form	Solid.
pH	Not available.
Melting point	3551 °F (1955 °C)
Freezing point	3551 °F (1955 °C)
Boiling point	4946 °F (2730 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor density	Not available.
Specific gravity	6.72
Relative density	Not available.
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Molecular weight	74.69 g/mol
Molecular formula	Ni-O

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Excessive heat.
Incompatible materials	Strong oxidizing agents. Fluorine. Hydrogen peroxide (H ₂ O ₂). Aluminum. Sulfur. Hydrogen.
Hazardous decomposition products	Decomposition may yield Nickel carbonyl.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Sensitization	May cause sensitization by skin contact.
Acute effects	Harmful if inhaled.
Local effects	May cause eye irritation. May cause skin irritation. May cause irritation to the respiratory system.
Chronic effects	Prolonged or repeated exposure may cause lung injury.
Carcinogenicity	Cancer Hazard. Contains nickel, which can cause lung or nasal cancer. Long-term breathing of this material may cause chronic lung disease.
ACGIH Carcinogens	
NICKEL OXIDE (CAS 1313-99-1)	A1 Confirmed human carcinogen.
IARC Monographs. Overall Evaluation of Carcinogenicity	
NICKEL OXIDE (CAS 1313-99-1)	1 Carcinogenic to humans.
US NTP Report on Carcinogens: Known carcinogen	
NICKEL OXIDE (CAS 1313-99-1)	Known carcinogen.
Skin corrosion/irritation	May irritate and cause redness and pain.
Epidemiology	Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Neurological effects	None known.
Reproductive effects	Contains no ingredient listed as toxic to reproduction
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Irritant effects. Sensitization.

12. Ecological Information

Ecotoxicity	May cause long lasting harmful effects to aquatic life.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	The product is not biodegradable.
Partition coefficient (n-octanol/water)	Not available

13. Disposal Considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations. Incinerate the material under controlled conditions in an approved incinerator.
Contaminated packaging	Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

NICKEL OXIDE (CAS 1313-99-1) 0.1 % N495

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

NICKEL OXIDE (CAS 1313-99-1) Listed. N495

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Clean Air Act (CAA) HAPS list
Urban HAPS list

Clean Water Act (CWA) Priority pollutant
Toxic pollutant

Inventory status

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
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)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	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)

State regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

NICKEL OXIDE (CAS 1313-99-1) Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

NICKEL OXIDE (CAS 1313-99-1) Listed: October 1, 1989 Carcinogenic.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

NICKEL OXIDE (CAS 1313-99-1) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

NICKEL OXIDE (CAS 1313-99-1) Listed.

US - Pennsylvania RTK - Hazardous Substances: Special hazard

NICKEL OXIDE (CAS 1313-99-1) Special hazard.

Saf-T-Data

Health: 3 - Severe (Cancer Causing)

Flammability: 0 - None

Reactivity: 1 - Slight

Contact: 3 - Severe (Life)

Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: G - Green (General Storage)

16. Labeling Info

Label Hazard Warning

DANGER

Cancer hazard - can cause cancer. Harmful if inhaled. May cause an allergic skin reaction. Product dust may be irritating to eyes, skin and respiratory system. Prolonged or repeated exposure may cause lung injury.

Label Precautions

Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if symptoms occur. If ingestion of a large amount does occur, call a poison control center immediately.

17. Other Information

NFPA ratings

Health: 2

Flammability: 0

Instability: 0

Disclaimer

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