

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Nickel Oxide Nanowires, Research Grade**

Catalog Number: NovaWire-NiO-20

Formula: NiO

Diameter: ~ 20 nm

Length: ~ 20 micron

Supplier: Novarials Corporation
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2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Carcinogen, Target Organ Effect, Skin Sensitizer

Target Organs

Lungs

GHS Classification

Skin sensitization (Category 1)

Carcinogenicity (Category 1A)

Specific target organ toxicity - repeated exposure, inhalation (Category 1)

Chronic aquatic toxicity (Category 4)

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H317

May cause an allergic skin reaction.

H350

May cause cancer.

H372

Causes damage to organs through prolonged or repeated exposure if inhaled.

H413

May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use
P280 Wear protective gloves.
P308 + P313 If exposed or concerned: get medical advice/attention

HMIS Ratings

Health Hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical Hazard: 0

NFPA Ratings

Health Hazard: 2
Fire Hazard: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. May causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Nickel Oxide
Formula: NiO
Molecular Weight: 74.69 g/mol

Component	Concentration
Nickel Monoxide	
CAS-No.	1313-99-1
EC-No.	215-215-7
Index-No	028-003-00-2

4. FIRST AID MEASURES

General advice

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions – nickel/nickel oxide

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

8. PERSONAL PROTECTION

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respiration type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected

according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Form	powder
Color	black

Safety data

pH	no data available
Melting point/freezing point	no data available
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Auto ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Materials to avoid

Strong acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions – Nickel/Nickel oxide
Other decomposition products -no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

no data available

Inhalation LC50

no data available

Dermal LD50

no data available

Other information on acute toxicity

LD50 Subcutaneous – mouse – 50 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

Maximization Test – rabbit – OECD Test Guideline 406 – May cause sensitization by skin contact.

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Nickel oxide)

NTP: Known to be human carcinogen (Nickel oxide)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity -single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity -repeated exposure (Globally Harmonized System)

Inhalation - Cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

no data available

Potential health effects

Inhalation

May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion

May be harmful if swallowed.

Skin

May be harmful if absorbed through skin. May cause skin irritation.

Eyes

May causes eye irritation.

Synergistic effects

no data available

Additional Information

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability

Biodegradability Result – according to the test results, this product is not readily biodegradable.

Bioaccumulative potential

Bioaccumulation Fucus vesiculosus – 21d
Bioconcentration factor (BCF): 675
Method: Tested according to Annex V of Directive 67/548/EEC
Remarks: The product may be accumulated in organisms

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards

Target Organ Effect, Skin sensitizer, Carcinogen

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

Nickel Oxide

CAS-No. 1313-99-1

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Nickel Oxide

CAS-No. 1313-99-1

Pennsylvania Right To Know Components

Nickel Oxide

CAS-No. 1313-99-1

New Jersey Right To Know Components

Nickel Oxide

CAS-No. 1313-99-1

California Prop. 65 Components

Product contains a chemical known to the State of California to cause cancer.

Nickel Oxide

CAS-No. 1313-99-1

16. DISCLAIMER

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