

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nickel Hydroxide Nanowires, Research Grade

Catalog Number: NovaWire-NiOH-40

Formula: Ni(OH)₂

Diameter: ~ 40nm

Length: ~ 50µm

Supplier: Novarials Corporation
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Woburn, MA 01801

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2. HAZARDS IDENTIFICATION

Emergency Overview

GHS Classification

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Skin irritation (Category 2), H315

Respiratory sensitisation (Category 1), H334

Skin sensitisation (Category 1), H317

Germ cell mutagenicity (Category 2), H341

Carcinogenicity (Category 1A), H350

Reproductive toxicity (Category 1B), H360

Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Lungs, H372

Acute aquatic toxicity (Category 1), H400 Chronic aquatic toxicity (Category 1), H410

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled.
H313	May be harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.

H360 May damage fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure if inhaled.
H400 Very toxic to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use.
P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection/face protection.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

NFPA Ratings

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

HMIS Ratings

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Nickel hydroxide
Formula: Ni(OH)₂
Molecular Weight: 92.71 g/mol

Component	Concentration
Nickel dihydroxide	
CAS-No.	12054-48-7
EC-No.	235-008-5
Index-No.	028-008-00-X

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 oxides

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Use personal protective equipment. 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 cool, dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Personal protective equipment****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/Face 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

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Form powder
Color green

Safety data

pH no data available
Melting point/freezing point no data available
Boiling point no data available
Flash point no data available
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

Reactivity

no data available

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, strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions – Nickel/nickel oxides
Other decomposition products: no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - Rat – 1515 mg/kg

Remarks: Behavioral: Somnolence (general depressed activity)
Behavioral: Ataxia, Diarrhoea

LC50 Inhalation – rat – 4h – 1200 mg/m³

Remarks: Behavioral: Excitement. Lungs, Thorax, or Respiration: Dyspnea. Skin and Appendages. Other: Hair.

LD50 Dermal – rat - > 2000 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

May cause allergic skin reaction.

Germ cell mutagenicity

no data available

Carcinogenicity

Carcinogenicity – rat – Intramuscular

Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. Musculoskeletal: Tumors

Carcinogenicity – rat – Intramuscular

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Musculoskeletal: Tumors. Tumorigenic: Tumors at site or application.

IARC: 1 – Group 1: Carcinogenic to humans

NTP: Known to be human carcinogen.

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

Presumed human reproductive toxicant

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

no data available

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

Inhalation – Causes damage to organ through prolonged or repeated exposure.

Aspiration hazard

no data available

Signs and Symptoms of Exposure

Materials is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes and skin. Cough, shortness of breath, Headache, Nausea.

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

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. Dissolve or mix the materials with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Nickel dihydroxide)

Reportable Quantity (RQ): 10 lbs

Marine pollutant:

Poison Inhalation Hazard: No

IMDG

UN3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Nickel dihydroxide)

Marine pollutant: No

IATA

UN3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Nickel dihydroxide)

15. REGULATORY INFORMATION

OSHA Hazards

Carcinogen, Toxic by inhalation, Harmful by ingestion, Skin sensitiser, Irritant, Teratogen.

SARA 302 Components

not required

SARA 313 Components

Nickel dihydroxide CAS-No. 12054-48-7

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Nickel dihydroxide CAS-No. 12054-48-7

Pennsylvania Right To Know Components

Nickel dihydroxide CAS-No. 12054-48-7

New Jersey Right To Know Components

Nickel dihydroxide CAS-No. 12054-48-7

California Prop. 65 Components

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

Nickel dihydroxide CAS-No. 12054-48-7

16. DISCLAIMER

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