

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nickel Nanowires A200, Research Grade

Catalog Number: NovaWire-Ni-200

Formula: Ni

Diameter: ~ 200 nm

Length: ~ 200 μ m

Supplier: Novarials Corporation
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Woburn, MA 01801

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2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Flammable solid, Carcinogen, Target Organ Effect, Skin sensitiser

Target Organs

Lungs

GHS Classification

Flammable solids (Category 2)

Skin sensitization (Category 1)

Carcinogenicity (Category 2)

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

Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H228

Flammable solid.

H317

May cause an allergic skin reaction.

H351

Suspected of causing cancer.

H372

Causes damage to organs through prolonged or repeated exposure if

Rinse thoroughly with plenty of water. Consult a physician.

If swallowed

Do NOT induce vomiting. 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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. 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

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. 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. Keep away from sources of ignition – No smoking. Take measurement to prevent the build up of electrostatic charge.

Conditions for safe storage

Store in cool place. 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. Flame retardant antistatic protective clothing. 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 at the end of workday.

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 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 8.9 g/cm³ at 25 °C (77 °F)
Water solubility insoluble
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

Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid

Acids, oxidizing agents, sulphur compounds, hydrogen gas, oxygen, methanol, organic solvents, aluminium, fluorine, ammonia

Hazardous decomposition products

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

11. TOXICOLOGICAL INFORMATION**Acute toxicity**

no data available

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

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity of animal studies.

IARC: 2B – Group 2B: Possible carcinogenic to humans

NTP: Reasonably anticipated to be a 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.

Reproductive toxicity

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 – Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

no data available

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish

LC50 – Cyprinus carpio (Carp) – 1.3 mg/L – 96h

Toxicity to daphnia and other aquatic invertebrates

EC50 – Daphnia magna (Water flea) – 1 mg/L – 48h

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. Burn in a chemical incinerator equipped with an afterburner and scrubber, but exert extra care in igniting as this material is highly flammable.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powders, flammable, n.o.s.
Reportable Quantity (RQ): 100 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN3089 Class: 4.1 Packing group: II EMS-No: F-G, S-G
Proper shipping name: Metal powders, flammable, n.o.s
Marine pollutant: No

IATA

UN3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powders, flammable, n.o.s.

15. REGULATORY INFORMATION**OSHA Hazards**

Flammable solid, Carcinogen, Target Organ Effect, Skin sensitiser

SARA 302 Components

Not required

SARA 313 Components

Nickel

CAS-No. 7440-02-0

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Nickel CAS-No. 7440-02-0

Pennsylvania Right To Know Components

Nickel CAS-No. 7440-02-0

New Jersey Right To Know Components

Nickel CAS-No. 7440-02-0

California Prop. 65 Components

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

Nickel CAS-No. 7440-02-0

16. DISCLAIMER

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