

# SAFETY DATA SHEET (SDS)

Version 1.0 from 01.12.2021

## SECTION 1 Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name: Nickel nanowires, 200 nm diameter  
Product number(s): EM2000040  
REACH No.: A registration number is not available for this substance, as the annual tonnage does not require a registration.  
CAS-No.: 7440-02-0

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacture of substances

### 1.3 Details of the supplier of the safety data sheet

Company: EMFUTUR Technologies  
Labrador square, 5  
12540 Vila-real (CS) - Spain

Email address: mail@emfutur.com

## SECTION 2 Hazards identification

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

|  |      |
|--|------|
| Carcinogenicity (Category 2),                                    | H351 |
| Skin sensitization (Category 1),                                 | H317 |
| Specific target organ toxicity - repeated exposure (Category 1), | H372 |
| Chronic aquatic toxicity (Category 3),                           | H412 |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 Label elements

Labeling according Regulation (EC) No 1272/2008

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.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P273 Avoid release to the environment  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P314 Get medical advice/ attention if you feel unwell.  
P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.

Supplemental Hazard Statements: none

## 2.3 Other hazards

none

# SECTION 3 Composition/information on ingredients

## 3.1 Substances

Formula: Ni  
Molecular weight: 58,69 g/mol  
CAS-No.: 7440-02-0  
EC-No. 231-111-4  
Index-No.: 028-002-01-4

Hazardous ingredients according to Regulation (EC) No 1272/2008

| Component                         |              | Classification  | Concentration |
|-----------------------------------|--------------|---|---------------|
| Nickel [particle diameter < 1 mm] |              |   |               |
| CAS-No.                           | 7440-02-0    | Carc. 2; Skin Sens. 1; STOT RE 1; Aquatic Chronic 3; H351, H317, H372, H412 M-Factor - Aquatic Acute: 1 | ≤ 100%        |
| EC-No.                            | 231-111-4    |   |               |
| Index-No.                         | 028-002-01-4 |   |               |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4 First aid measures

### 4.1 Description of first aid measures

#### General advice

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. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

## SECTION 5 Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

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

### 5.2 Special hazards arising from the substance or mixture

Nickel/nickel oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for fire fighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

## SECTION 6 Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

For personal protection see section 8.

### 6.2 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.

### 6.3 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 (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

### 6.4 Reference to other sections

For disposal see section 13.

## SECTION 7 Handling and storage

### 7.1 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 measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

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

Handle and store under inert gas.

Storage class (TRGS 510): Flammable solid hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8 Exposure controls/personal protection

### 8.1 Control parameters

Components with workplace control parameters

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of work

#### Personal protective equipment

##### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### 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.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator 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).

### Control of environmental exposure

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

## SECTION 9 Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|   |  |             |
|---|--|-------------|
| a) Appearance                                   | Form: solid  | Color: grey |
| b) Odor   | No data available  |             |
| c) Odor Threshold                               | No data available  |             |
| d) pH   | No data available  |             |
| e) Melting point/freezing point                 | 1.453 °C   |             |
| f) Initial boiling point and boiling range      | 2.732 °C   |             |
| g) Flash point                                  | No data available  |             |
| h) Evaporation rate                             | No data available  |             |
| i) Flammability (solid, gas)                    | The substance or mixture is a flammable solid with the category 2. |             |
| j) Upper/lower flammability or explosive limits | No data available  |             |
| k) Vapor pressure                               | No data available  |             |
| l) Vapor density                                | No data available  |             |
| m) Relative density                             | 8,9 g/cm <sup>3</sup>  |             |
| n) Water solubility                             | insoluble  |             |
| o) Partition coefficient: n- octanol/water      | No data available  |             |
| p) Auto-ignition temperature                    | No data available  |             |
| q) Decomposition temperature                    | No data available  |             |
| r) Viscosity                                    | No data available  |             |
| s) Explosive properties                         | No data available  |             |
| t) Oxidizing properties                         | No data available  |             |

### 9.2 Other safety information

No data available

## SECTION 10 Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks.

#### 10.5 Incompatible materials

Acids, Oxidizing agents, Sulphur compounds, Hydrogen gas, Oxygen, Methanol, organic solvents, Aluminum, Fluorine, Ammonia

#### 10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

## SECTION 11 Toxicological information

### 11.1 Information on toxicological effects

|                                   |                   |
|-----------------------------------|-------------------|
| Acute toxicity                    | No data available |
| Skin corrosion/irritation         | No data available |
| Serious eye damage/eye irritation | No data available |
| Respiratory or skin sensitization | No data available |
| 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 in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Nickel, powder [particle diameter < 1 mm])

|   |  |
|---|--|
| <u>Reproductive toxicity</u>                              | No data available  |
| <u>Specific target organ toxicity - single exposure</u>   | No data available  |
| <u>Specific target organ toxicity - repeated exposure</u> | Inhalation - Causes damage to organs through prolonged or repeated exposure. |
| <u>Aspiration hazard</u>                                  | No data available  |

#### Additional Information

RTECS: Not available

## SECTION 12 Ecological information

### 12.1 Toxicity

|   |   |
|---|---|
| Toxicity to fish                                    | LC50 - Cyprinus carpio (Carp) - 1,3 mg/l - 96 h   |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 1 mg/l - 48 h |

### 12.2 Persistence and degradability

No data available

### 12.3 Bio-accumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### 12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects

### SECTION 13 Disposal considerations

#### 13.1 Waste treatment methods

##### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

##### Contaminated packaging

Dispose of as unused product.

### SECTION 14 Transport information

#### 14.1 UN-number

ADR/RID: 3089                      IMDG: 3089                      IATA: 3089

#### 14.2 UN proper shipping name

ADR/RID: METAL POWDER, FLAMMABLE, N.O.S. (Nickel, powder [particle diameter < 1 mm])

IMDG: METAL POWDER, FLAMMABLE, N.O.S. (Nickel, powder [particle diameter < 1 mm])

IATA: METAL POWDER, FLAMMABLE, N.O.S

Special Provisions: "Keep away from heat" label required.

#### 14.3 Transport hazard class(es)

ADR/RID: 4.1                      IMDG: 4.1                      IATA: 4.1

#### 14.4 Packaging group

ADR/RID: II                      IMDG: II                      IATA: II

#### 14.5 Environmental hazards

ADR/RID: yes                      IMDG Marine pollutant: yes                      IATA: no

#### 14.6 Special precautions for user

No data available

### SECTION 15 Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Nickel, powder [particle diameter < 1 mm] CAS-No.: 7440-02-0

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)

Shall not be used

See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction

#### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

## SECTION 16 Other information

Full text of H-Statements referred to under sections 2 and 3.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H372 Causes damage to organs through prolonged or repeated exposure. H412 Harmful to aquatic life with long lasting effects.

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. EMFUTUR Technologies and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

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