

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version: 1.0

Revision date: 7-Feb-24

Print date: 21-Feb-24

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

### 1.1 Product identifiers

Product name : Nickel/nickel oxide, nanopowder, Ni/NiOx  
Product Number : AN00-001  
Brand : Nano Hybrids  
REACH No. : *A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.*  
CAS-No. : 7440-02-0 / 1313-99-1

### 1.2 Relevant identified use 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 : Nano Hybrids B.V.  
Roetersstraat 35  
1018WB Amsterdam  
NETHERLANDS  
Telephone : +31 658729987  
E-mail : info@nanohybrids.com

### 1.4 Emergency telephone

Emergency phone : +31  
112 (Dutch alarm number)

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Skin irritation H317: May cause allergic reaction.  
Eye irritation H319: Causes eye irritation.  
Carcinogenicity H350(i): May cause cancer by inhalation.  
Specific target organ toxicity H372: May cause damage to organs through prolonged or repeated exposure if inhaled.



Long term aquatic hazard

H412: Harmful to aquatic life with long lasting effects.

## 2.2 Label elements

*Pictogram*



*Signal words:*

**Danger**

Hazard statements

H317

May cause an allergic skin reaction.

H319

Causes serious eye irritation.

H350i

May cause cancer by inhalation.

H372

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

H412

Harmful to aquatic life with long lasting effects.

Precautionary statements

P202

Do not handle until all safety precautions have been read and understood.

P260

Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P273

Avoid release to the environment.

P280

Wear protective gloves / protective clothing / eye protection / face protection.

P302 + P352

IF ON SKIN: Wash with plenty of water.

P308 + P313

IF exposed or concerned: Get medical advice / attention.

Supplemental Hazard Statements: None

P308 + P313

IF exposed or concerned: Get medical advice / attention.

Supplemental Hazard Statements

None

## 2.3 Other hazards



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

Ecological information: The substance does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substance

Synonyms	: Nickel / Nickel oxide
Formula	: Ni / NiO <sub>x</sub>
Molecular weigh	: 58.69 g/mol / 74.68 g/mol (NiO)
CAS-No.	: 7440-02-0 / 1313-99-1
EC-No.	: 231-111-4 / 215-215-7
No components need to be disclosed according to the applicable regulations.*	

*\*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.*

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## SECTION 4: First-aid measures

### 4.1 General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### **If inhaled**

After inhalation: fresh air. Call in physician.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Remove contact lenses.

#### **If swallowed**

After swallowing: immediately make victim drink water (two glasses at most). 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 labelling (see section 2.2) and/or in section 11.

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

No data available

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### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

##### **Suitable extinguishing media**

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

##### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

#### **5.2 Special Hazards arising from the substance or mixture**

Nickel/nickel oxides Not combustible.

Ambient fire may liberate hazardous vapours.

#### **5.3 Advice to firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### **5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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### **SECTION 6: Accidental release measures**

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

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

#### **6.2 Environmental precautions**

Do not let product enter drains.

#### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.



Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

#### **6.4 Reference to other sections**

For disposal see section 13.

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### **SECTION 7: Handling and storage**

#### **7.1 Precautions for safe handling**

##### **Advice on safe handling**

Work under a fume hood. Avoid generation of aerosols.

Wash hands after working with substance.

##### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection.

Wash hands and face after working with substance.

For precautions see section 2.2.

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

##### **Storage conditions**

Tightly closed. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

If possible, handle and store under inert gas.

##### **Storage class**

Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects.

#### **7.3 Specific end use(s)**

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

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### **Ingredients with workplace control parameters**

#### **8.2 Personal protective equipment**

##### **Eye/face protection**

Safety glasses.

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

##### **Skin protection**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.



Full contact

Material: Nitrile rubber  
 Minimum layer thickness: 0,11 mm  
 Break through time: 480 min  
 Material tested:KCL 741 Dermatril® L

Splash contact

Material: Nitrile rubber  
 Minimum layer thickness: 0,11 mm  
 Break through time: 480 min  
 Material tested:KCL 741 Dermatril® L

**Body Protection**

Protective clothing

**Respiratory protection**

Required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Control of environmental exposure**

Do not let product enter drains.

**SECTION 9: Physical/Chemical properties**

a)	Physical state	Solid powder
b)	Color	Black
c)	Odor	Odorless
d)	Melting point/freezing point	No data available
e)	Initial boiling point and boiling range	No data available
f)	Flammability	No data available
g)	Flammability/explosive limits	The product is not flammable
h)	Flash point	Not applicable
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	pH value	No data available
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	Non soluble



n)	Partition coefficient	Not applicable for inorganic substances
o)	Vapor pressure	No data available
p)	Density	No data available
q)	Particle characteristics	No data available
r)	Oxidizing properties	None
s)	Explosive properties	Not classified as explosive

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

For Nickel: acids, Oxidizing agents, Sulfur compounds, Hydrogen gas, Oxygen, Methanol, organic solvents, Aluminum, Fluorine, Ammonia.

For Nickel oxide: Strong acids.

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

## SECTION 11: Toxicology

### 11.1 Information on toxicological effects

#### Acute toxicity

*Nickel:*

LD50 Oral - Rat - male and female - > 9.000 mg/kg

(OECD Test Guideline 401)

Inhalation: No data available

Dermal: No data available

*Nickel oxide:*

LD50 Oral - Rat - male and female - > 5.000 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5,08 mg/l - aerosol

(OECD Test Guideline 403)

Dermal: No data available

#### Skin corrosion/irritation

Skin - Rabbit



Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation  
(OECD Test Guideline 405)

### **Respiratory or skin sensitization**

May cause allergic skin reaction. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

### **Germ cell mutagenicity**

*Nickel:*

No data available  
Test Type: gene mutation test  
Test system: Chinese hamster fibroblasts  
Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
Test Type: Micronucleus test  
Test system: Chinese hamster fibroblasts  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 487  
Result: negative

*Nickel oxide:*

Test Type: In vitro mammalian cell gene mutation test  
Test system: mouse lymphoma cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

### **Carcinogenicity**

*Nickel:*

*Suspected of causing cancer*

*Nickel oxide:*

Positive evidence from human epidemiological studies (inhalation)

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

Inhalation – Lungs - Causes damage to organs through prolonged or repeated exposure.  
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

### **Aspiration hazard**

No data available

## **11.2 Additional Information**

### **Endocrine disrupting properties**

#### **Product:**

Assessment      The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU)





2017/2100 or Commission Regulation (EU)  
2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male and female - Oral - 728 d  
NOAEL (No observed adverse effect level) - 2,2 mg/kg  
LOAEL (Lowest observed adverse effect level) - 6,7 mg/kg.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Handling with caution is strongly recommended.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### *Nickel:*

-Toxicity to fish semi-static test LC50 -  
Oncorhynchus mykiss (rainbow trout) - 15,3  
mg/l - 96 h

Remarks: (ECHA)

-Toxicity to daphnia and other aquatic  
invertebrates: static test LC50 -  
Ceriodaphnia dubia (water flea) - 0,074  
mg/l – 48 h

Remarks: (ECHA)

-Toxicity to algae static test EC50 -  
Pseudokirchneriella subcapitata (green  
algae) - > 81,5 - 148 mg/l - 72 h  
(OECD Test Guideline 201)

-Toxicity to daphnia and other aquatic  
invertebrates(Chronic toxicity):  
semi-static test EC10 - Ceriodaphnia dubia  
(water flea) - > 2,8 - 53,6 µg/l - 7 d  
(US-EPA)

#### *Nickel oxide:*

-Toxicity to fish semi-static test LC50 -  
Oncorhynchus mykiss (rainbow trout) - 15,3  
mg/l - 96 h

Remarks: (ECHA)

-Toxicity to daphnia and other aquatic  
invertebrates  
static test LC50 - Ceriodaphnia dubia (water  
flea) - 0,027 mg/l – 48 h

Remarks: (ECHA)

-Toxicity to algae static test ErC50 -  
Pseudokirchneriella subcapitata - 0,081 -  
0,148  
mg/l - 72 h  
(OECD Test Guideline 201)

-Toxicity to bacteria EC50 - activated sludge  
- 33 mg/l - 30 min  
(ISO 8192)

-Toxicity to fish(Chronic toxicity): flow-  
through test NOEC - Cyprinodon variegatus  
(sheepshead minnow) - 21,7 mg/l - 28 d  
Remarks: (ECHA)

### 12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

### 12.3 Bio accumulative potential

#### *Nickel oxide*

Bioaccumulation Fucus vesiculosus - 21 d  
- 0,00001 mg/l (Nickel oxide)



Bioconcentration factor (BCF): 675  
 (Tested according to Annex V of Directive 67/548/EEC.)  
 Remarks: The product may be accumulated in organisms.

**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 Endocrine disrupting properties**  
**Product:**  
 Assessment    The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects**  
 No data available

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**  
 Dispose of contents/container following an approved waste disposal procedure.

**13.2 Spillage**  
 Clean with soap and absorbing paper. Dispose paper in hazard container.

**SECTION 14: Transport**

**14.1 UN number**  
 ADR/RID:     -                                IMDG:             -                                IATA:             -

**14.2 UN proper shipping name**  
 ADR/RID:        Not dangerous goods  
 IMDG:            Not dangerous goods



IATA: Not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: - IMDG: - IATA: -

**14.4 Packaging group**

ADR/RID: - IMDG: - IATA: -

**14.5 Environmental hazards**

ADR/RID: No IMDG: No IATA: No

**14.6 Special precautions for user**

No data available

**Further information**

Not classified as dangerous in the meaning of transport regulations.

**SECTION 15: Regulatory information**

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

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

**15.2 Chemical Safety Assessment**

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

**SECTION 16: Remaining information**

**Full text of H-Statements**

**Full text of other abbreviations**

ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardization; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IATA - International Air Transport Association; IMDG – International Maritime Dangerous Goods; n.o.s. - Not Otherwise Specified; PBT - Persistent, Bio accumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SDS -



Safety Data Sheet; UN- United Nations; vPvB - Very Persistent and Very Bio accumulative

**Further information**

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.

