

SAFETY DATA SHEET (SDS)

Version 2.0 from 24.05.2022

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

1.1 Product identifiers

Product name: Silver Nanowires - 50/100/200 nm dia., (Length: 5- 50 µm)

Product number(s): EM2000020 / EM2000021 / EM2000022

REACH No.: A registration number is not available for this substance, as the annual tonnage does not require a registration.

CAS-No.: 7440-22-4

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

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

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: Warning

Hazard statement(s):
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s): none

Supplemental Hazard Statements: none

2.3 Other hazards

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.

SECTION 3 Composition/information on ingredients

3.1 Substances

Formula: Ag
Molecular weight: 107,87 g/mol
CAS-No.: 7440-22-4
EC-No. 231-131-3

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

Component	Classification	Concentration
Silver		
CAS-No.: 7440-22-4 EC-No. 231-131-3	Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 100	≤ 100%

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. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

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

No data available

5.3 Advice for firefighters

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

5.4 Further information

No data available

SECTION 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. 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

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

6.4 Reference to other sections

For disposal see section 13.

SECTION 7 Handling and storage

7.1 Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.
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.
Air sensitive. Handle and store under inert gas.

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

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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: powder	Color: grey
b) Odor	No data available	
c) Odor Threshold	No data available	
d) pH	No data available	
e) Melting point/freezing point	960 °C lit.	
f) Initial boiling point and boiling range	2212 °C lit.	
g) Flash point	No data available	
h) Evaporation rate	No data available	
i) Flammability (solid, gas)	No data available	
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	10,49 g/cm ³	
n) Water solubility	No data available	
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

No data available

10.5 Incompatible materials

Oxygen, Strong acids and strong bases

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Silver/silver oxides 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	LD50 Oral - Rat - male - > 5.000 mg/kg
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

Carcinogenicity - Rat - Unreported Tumorigenic:Tumors at site or application.
Carcinogenicity classification not possible from current data.

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

<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>	No data available
<u>Aspiration hazard</u>	No data available

Additional Information

RTECS: Not available

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver).

SECTION 12 Ecological information

12.1 Toxicity

No data available

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

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself..

Contaminated packaging

Dispose of as unused product.

SECTION 14 Transport information

14.1 UN-number

ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

14.6 Special precautions for user

No data available

Further information:

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15 Regulatory information

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

This safety datasheet 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 Other information

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

H400

Very toxic to aquatic life..

H410

Very toxic 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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