Safety Data Sheet

Silver powder, coated with fatty acids

Revision Date: 08/11/2025 Version: 3

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY / UNDERTAKING

1.1 Product identifier

Product name	Silver powder, coated with fatty acids Nanoform: 20 nm
Product code	NM-0037
CAS	7440-22-4
EC-Number:	231-131-3
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 envisaged for a later registration deadline.

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

Supplier	IoLiTec Ionic Liquids Technologies GmbH Im Zukunftspark 9 D – 74076 Heilbronn Germany
Telephone	+49 (0)7131-89839-0
Fax	+49 (0)7131-89839-109
Email	msds@iolitec.de

1.4 Emergency telephone number

Emergency telephone	+49 (0)151-41255671

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULTATION (EC) No 1272/2008)

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Pictogram

Signal word Warning

Hazard statements

H-phrases

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P phrases

P273	Avoid release to the environment.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

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.

Ecological information:

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.

Toxicological information:

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.

3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Silver powder, 20 nm

CAS: 7440-22-4

EC-Number: 231-131-3

Ingredient name	Contents	Classification
Silver powder, 20 nm	99+%	Aquatic Acute 1; Aquatic Chronic 1

Formula	Molecular Weight
Ag	107.87 g/mol

No components need to be disclosed according to the applicable regulations.

4 FIRST AID MEASURES

General

Contaminated clothing should be removed and washed before being reused.

Inhalation

Move the exposed person to fresh air at once. If respiratory problems, provide artificial respiration/oxygen.

Ingestion

Immediately rinse mouth and provide fresh air. Do not induce vomiting. Get medical attention immediately.

Skin

Wash the skin immediately with soap and water.

Eyes

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention immediately.

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.

5 FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use suitable fire-fighting measures depending on the surrounding environment.

Use: Water spray, fog or mist. Carbon dioxides (CO_2). Dry chemicals, sand, dolomite etc.

5.2. Special hazards arising from the substance or mixture

Avoid water in straight hose stream, will scatter and spread fire. Keep run-off water out of sewers and water sources. Dike for water control. Fire causes formation of toxic gases.

5.3. Advice for firefighters

Wear self-contained breathing apparatus as combustion may produce hazardous fumes.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing and avoid inhalation of vapor, skin or eye contact.

6.2 Environmental precautions

Avoid washing into water courses. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Avoid contact with skin or inhalation of spillage, dust or vapor. Avoid dust formation. Collect and reclaim or dispose in sealed containers in license waste.

6.4 Reference to other sections

For disposal see section 13.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Minimize dust generation and accumulation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Do not use in confined spaces without adequate ventilation and/or respirator.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a dry and well-ventilated place. Keep container tightly closed. Air sensitive. Store under inert gas.

Storage class

Storage class (TRGS 510): 10 -13:

7.3 Specific end use(s)

Chemical storage.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters

Ingredients with workplace control parameters.

8.2 Exposure controls

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

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9 PHYSICAL AND CHEMICAL PROPERTIES

a) Physical state powder	Solid, powder.
b) Color	Metallic green.
c) Odor	No characteristic odor.
d) Melting point/freezing point	960.8°C
e) Initial boiling point/boiling range	2210°C
f) Flammability (solid, gas)	No data available.
g) Upper/lower flammability or explosive limits	No data available.

h) Flash point	No data available.
i) Autoignition temperature	No data available.
j) Decomposition temperature	No data available.
k) pH	No data available.
l) Viscosity	No data available.
m) Water solubility	No data available.
n) Partition coefficient n-octanol/water	Not applicable.
o) Vapor pressure	No data available.
p) Density	
Relative density	10.49 g/cm^3
Bulk density	0.35 g/cm^3
q) Relative vapor density	No data available.
r) Particle characteristics	Average Particle Size: 20 nm Specific Surface Area: ~ 15 - 20 m^2/g
s) Explosive properties	No data available.
t) Oxidizing properties	No data available.

9.2 Other safety information

No data available.

10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

Risk of explosion with: Ammonia. Ammonium compounds. Ethanol. Nitric acid. Oxalic acid. Performic acid. Acetylidene.

Risk of ignition or formation of inflammable gases or vapours with: Halogen-halogen compounds. Nitric acid. Conc. sulfuric acid.

Exothermic reaction with: Azides. Ethylene oxide. Peroxi compounds. Organic Substances.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

High temperatures generate: Corrosive gases/vapor/fumes of: Metal oxides.

11 TOXICOLOGICAL INFORMATION

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

no data available

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Subacute to chronic toxicity

Absorption of silver compounds by ingestion, inhalation or through broken skin can cause argyria, a permanent bluish-grey discoloration of the skin, conjunctiva and mucous membranes.

Potential health effects

Inhalation No data available.

Ingestion No data available.

Skin No data available.

Eyes No data available.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

11.2 Additional Information

Endocrine disrupting properties

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.

RTECS:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish semi-static test LC50 - Pimephales promelas (fathead minnow) – 0.0021 mg/l - 96 h

Remarks: (ECOTOX Database)

flow-through test NOEC - Pimephales promelas (fathead minnow) – 0.00046 mg/l – 34 d

Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates

semi-static test LC50 - Daphnia magna (Water flea) – 0.00022 mg/l - 48 h

Remarks: (ECHA)

semi-static test NOEC - Daphnia magna (Water flea) – 0.00016 mg/l - 21 d

Remarks: (ECHA)

Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata (green algae) - 0,000285 mg/l - 72 h (OECD Test Guideline 201)

Remarks: (ECHA)

static test EC10 - Pseudokirchneriella subcapitata (green algae) - 0,000005 mg/l - 72 h (OECD Test Guideline 201)

Remarks: (ECHA)

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative 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 Endocrine disrupting properties

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

Discharge into the environment must be avoided.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Contact specialist disposal companies. Dispose of in accordance with Local Authority requirements. Recover and reclaim or recycle, if practical. Do not dispose in communal waste water.

14 TRANSPORT INFORMATION

14.1 UN number

ADR/RID: UN3077 IMDG: UN3077 IATA: UN3077

14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (SILVER)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (SILVER)

IATA: Environmentally hazardous substance, solid, n.o.s. (Silver)

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. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9.

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

no data available

Country specific information

Germany WGK: 2 (Self-Classification)

16 OTHER INFORMATION

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