



Safety Data Sheet

Skyspring Nanomaterials, Inc.

www.ssnano.com

Revision date: 02/01/2024

- **1 Identification of substance:**

- **Product details:**

- **Product name:** Silver Ag nanopowder/ nanoparticles self-dispersing

- **Stock number:** 0127SH

- **Manufacturer/Supplier:**

SkySpring Nanomaterials, Inc.

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- **2 Hazards identification**

- 2.1 Classification of the substance or mixture**

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Short-term (acute) aquatic hazard (Category 1), H400

Long-term (chronic) aquatic hazard (Category 1), H410

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

- 2.2 GHS Label elements, including precautionary statements**



Pictogram

Signal Word

Warning

Hazard statement(s)

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273 Avoid release to the environment.

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant.

- 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none**

- **3 Composition/information on ingredients**

3.1 Substance

Formula: Ag

Molecular weight: 107.87 g/mol

CAS Number: 7440-22-4

EINECS Number: 231-131-3

Component	Classification	Concentration
Silver	Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 100 - Aquatic Chronic: 100	≤100%

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

- **4 First aid measures**

4.1 Description of first-aid measures**If inhaled**

After inhalation: fresh air.

In case of skin contact

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

In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

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 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

Silver/silver oxides

Not combustible.

Ambient fire may liberate hazardous vapors.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

• 6 Accidental release measures

• Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

• Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

• Measures for cleaning/collecting: Pick up mechanically.

• Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

• 7 Handling and storage

• Handling

• Information for safe handling:

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

No special precautions are necessary if used correctly.

• Information about protection against explosions and fires:

No special measures required.

• Storage

• Requirements to be met by storerooms and receptacles:

No special requirements.

• Information about storage in one common storage facility:

Do not store together with acids.

Do not store together with alkalis (caustic solutions).

• Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

- **8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Silver metal

	mg/m ³
ACGIH TLV	0.1
Austria MAK	0.01
Belgium TWA	0.1
Denmark TWA	0.01
Finland TWA	0.1
France VME	0.1
Germany MAK	0.01
Japan OEL	0.01
Korea TWA	0.1
Netherlands MAC-TGG	0.01
Norway TWA	0.01
Russia TWA	1-STEL
Sweden NGV	0.1
Switzerland MAK-W	0.01
United Kingdom TWA	0.1
USA PEL TWA	0.01

- **Additional information:** No data

- **Personal protective equipment**

- **General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

- **Breathing equipment:**

Use suitable respirator when high concentrations are present.

- **Protection of hands:** Impervious gloves

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing.

- **9 Physical and chemical properties:**

- **General Information**

- **Form:** Powder

- **Color:** Black gray

- **Odor:** Odorless

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
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- **Change in condition**
- **Melting point/Melting range:** 960.8 ° C
- **Boiling point/Boiling range:** 2210 ° C
- **Sublimation temperature / start:** Not determined
- **Flash point:** Not applicable
- **Flammability (solid, gaseous)** Not determined
- **Ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **Danger of explosion:**
Product does not present an explosion hazard.
- **Explosion limits:**
- **Lower:** Not determined
- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Density:** at 20 ° C 10.491 g/cm³
- **Solubility in / Miscibility with**
- **Water:** Insoluble
Not determined

- **10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:**
Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:**
Acids
Bases
- **Dangerous reactions**
Silver may react with acetylene or ammonia to form shock sensitive compounds.
- **Dangerous products of decomposition:** Metal oxide fume

- **11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Powder: irritant effect
- **on the eye:** Powder: irritant effect
- **Sensitization:** No sensitizing effects known.

- **Other information (about experimental toxicology):**
Tumorigenic effects have been observed on tests with laboratory animals.
- **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.
- **Additional toxicological information:**
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

- **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)

- 12.2 Persistence and degradability**

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

- 12.3 Bioaccumulative potential**

- No data available

- 12.4 Mobility in soil**

- No data available

- 12.5 Results of PBT and vPvB assessment**

- PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

- 12.6 Endocrine disrupting properties**

- No data available

- 12.7 Other adverse effects**

- Discharge into the environment must be avoided.

- **13 Disposal considerations**

- **Product:**
- **Recommendation**
Consult state, local or national regulations to ensure proper disposal.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.

- **14 Transport information**

DOT (US)

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s.
(colloidal silver)

Reportable Quantity (RQ): 1 lb

Poison Inhalation Hazard: No

IMDG

UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Marine pollutant: yes

IATA

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s.

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.

- **15 Regulations**

- **Product related hazard information:**

Observe the general safety regulations when handling chemicals

- **National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.

- **Information about limitation of use:**

For use only by technically qualified individuals.

This product contains silver and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

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- **16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.