Trade name: AgCite®

SECTION 1: Identification

Product identifier used on the label:
Product Name: **AgCite®**

Other means of identification:
Product Number: 90072 (NND-MAT-CI-0002)

Recommended use of the chemical and restrictions on use:
Recommended use: Conductive ink
Recommended restrictions: Uses other than as recommended above

Name, U.S. address, and U.S. telephone number of the chemical manufacturer, importer, or other responsible party:

Company Name: Nano Dimension USA Headquarters

Company Address: 300 5th Ave, Suite 1010
Waltham, MA 02451
United States

Company Telephone: +1 857-557-8022

Company Contact Name: Smitha Salama,
Smitha.Salama@nano-di.com

Emergency phone number: +1 857-557-8022

Poison Center Information: American Association of Poison Control Centers.
Poison Help line - 1-800-222-1222 (24/7)
Website - PoisonHelp.org

SECTION 2: Hazard(s) identification

Classification of the chemical in accordance with paragraph (d)(1)(i) of §1910.1200:
Physical hazards
None known

Health hazards
Serious eye irritation, category 2A

Environmental hazards
Not adopted under OSHA paragraph (d) of §1910.1200

GHS Signal word: WARNING

GHS Hazard statement(s): Causes serious eye irritation

GHS Hazard symbol(s):

GHS Precautionary statement(s):

Prevention:

- Wash thoroughly after handling.
  Wear eye protection/face protection

Response:

- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If eye irritation persists: Get medical advice/attention.

Storage:

- None required

Disposal:

- None required

Describe any hazards not otherwise classified that have been identified during the classification process:
None known.

Percentage of ingredient(s) of unknown acute toxicity:
20% of the mixture consists of ingredients of unknown acute toxicity (dermal)
50% of the mixture consists of ingredients of unknown acute toxicity (inhalation).

SECTION 3: Composition/information on ingredients

Mixture:

Chemical name	CAS#	Concentration (weight %)
Silver	7440-22-4	30-60%
Diethylene glycol monobutyl ether	112-34-5	20-50%
1,3-Butanediol	107-88-0	5-20%

Note: The concentration range has been withheld in accordance with the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

SECTION 4: First-aid measures

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion:

Inhalation: Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Oxygen should only be administered by qualified personnel. Seek medical advice.

Skin contact: Wash with water and soap and rinse thoroughly. Seek medical advice if irritation or pain develops.

Eye contact: In case of eye contact, rinse with plenty of water for at least 15 minutes. Get medical attention if symptoms develop.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist consult doctor.

Most important symptoms/effects, acute and delayed:
Causes serious eye irritation.

Indication of immediate medical attention and special treatment needed, if necessary:
If any symptoms are observed, contact a physician and give them this SDS sheet.

SECTION 5: Fire-fighting measures

Suitable (and unsuitable) extinguishing media:
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Not expected to be flammable. Use extinguishing media suitable for the surrounding area.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):
Not expected to be flammable. In the case of a fire, consider the surrounding area.
Hazardous combustion products may include the following substances: Carbon monoxide, Carbon dioxide (CO2), Silver/silver oxides.

Special protective equipment and precautions for fire-fighters:
Wear self-contained breathing apparatus and protective clothing. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).
Keep out of drains, surface waters and soil against pollution.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:
No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away from and upwind of spill/leak. Wear appropriate personal protective equipment (refer to Section 8 Exposure controls/ personal protection) and avoid inhalation or contact with eyes and skin.

Methods and materials for containment and cleaning up:
Stop the flow of material, if safe to do so. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

Precautions for safe handling:
Avoid breathing mist or vapor. Avoid contact with eyes. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibles:
Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

For all ingredients or constituents listed in Section 3, the OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit or range used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

US OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200) (Table Z-1 Limits for Air Contaminants):		
Substance	**PEL-TWA (8 hour)**	**PEL-STEL (15 min)**
Silver	0.01 mg/m3 TWA	No data available
Diethylene glycol monobutyl ether	No data available	No data available
1,3-Butanediol	No data available	No data available

US ACGIH Threshold Limit Values		
Substance	**TLV-TWA (8 hour)**	**TLV-STEL (15 min)**
Silver	0.1 mg/m3 TWA (dust and fume)	No data available
Diethylene glycol monobutyl ether	10 ppm TWA (inhalable fraction and vapor)	No data available
1,3-Butanediol	No data available	No data available

Appropriate engineering controls:
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.
If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station. Eye wash fountain and emergency showers are recommended. Concentrations should be monitored hazardous substances in the workplace in accordance with recognized test methods. Mode, method, type and frequency of testing and measurement of harmful factors in the working environment should meet the requirements of local/regional/national laws.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin and hand protection: Wear appropriate chemical resistant gloves such as nitrile rubber. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
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. The selected protective gloves have to satisfy the specifications of ASTM F739.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a chemical respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH).

General hygiene considerations: The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wash hands after use.

SECTION 9: Physical and chemical properties

Physical state:	Liquid
Color:	Dark gray
Odor (includes odor threshold):	Odorless
Melting point/freezing point:	Not determined
Boiling point (or initial boiling point or boiling range):	Not determined
Flammability:	Not expected to be flammable
Lower and upper explosion limit/flammability limit:	
Lower limit (%):	Not determined
Upper limit (%):	Not determined
Flash point:	>199.4 °F (> 93 °C)
Auto-ignition temperature:	Not determined
Decomposition temperature:	No decomposition observed
pH:	6.1
Kinematic viscosity:	Not determined
Solubility:	Not miscible or difficult to mix
Partition coefficient n-octanol/water (log value):	Not determined
Vapor pressure (includes evaporation rate):	Not determined
Density and/or relative density:	1.8 g/cm3 (15.021 lbs/gal)
Relative vapor density:	Not determined
Particle characteristic:	Not determined

SECTION 10: Stability and reactivity

Reactivity:	No hazardous reactions anticipated under normal storage and handling conditions.
Chemical stability:	Stable under normal ambient and anticipated conditions of use
Possibility of hazardous reactions, including those associated with foreseeable emergencies:	None expected
Conditions to avoid:	No further relevant information available.
Incompatible materials:	No further relevant information available
Hazardous decomposition products:	No decomposition if used and stored according to specifications. In case of fire, the following may be formed: Carbon monoxide, Carbon dioxide (CO2), Silver/silver oxides.

SECTION 11: Toxicological information

Information on likely routes of exposure:

Inhalation: Expected to be a route of exposure

Ingestion: Expected to be a route of exposure

Skin: Expected to be a route of exposure

Eyes: Expected to be a route of exposure

Symptoms related to the physical, chemical, and toxicological characteristics:
Causes serious eye irritation.

Delayed and immediate effects and also chronic effects from short or long-term exposure:
Other than the symptoms above, no further effects are known.

Numerical measures of toxicity (such as acute toxicity estimates):

Acute toxicity: Not expected to be harmful if swallowed, if on skin or if inhaled.

Substance	Test Type (species)	Value
Silver	LD_{50} Oral (Rat)	> 2000 mg/kg
	LD_{50} Dermal (Rabbit)	> 2000 mg/kg
	LC_{50} Inhalation (Rat)	> 5.16 mg/L air (analytical) -4h
Diethylene glycol monobutyl ether	LD_{50} Oral (Rat)	5660 mg/kg
	LD_{50} Dermal (Rabbit)	2700 mg/kg
	LC_{50} Inhalation (Rat)	None known
1,3-Butanediol	LD_{50} Oral (Rat)	18610 mg/kg
	LD_{50} Dermal (Rabbit)	None known
	LC_{50} Inhalation (Rat)	> 60 ppm 8h

Skin corrosion/irritation: Not expected to cause skin irritation/corrosion.

Serious eye damage/eye irritation: Causes serious eye irritation

Respiratory or skin sensitization: Not expected to cause respiratory or skin sensitization.

Germ cell mutagenicity: Not expected to cause genetic defects.

Carcinogenicity: Not expected to cause cancer.

Reproductive toxicity: Not expected to damage fertility or the unborn child.

STOT – Single exposure: Not expected to cause specific target organ toxicity after a single exposure.

STOT – Repeat exposure: Not expected to cause specific target organ toxicity after prolonged or repeated exposure.

Aspiration hazard: This product is not anticipated to be an aspiration hazard if swallowed.

Interactive effects: None known

Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA:

Component	IARC	NTP	ACGIH	OSHA
Silver	Not listed	Not listed	Not listed	Not listed
Diethylene glycol monobutyl ether	Not listed	Not listed	Not listed	Not listed
1,3-Butanediol	Not listed	Not listed	Not listed	Not listed

SECTION 12: Ecological information

Ecotoxicity (aquatic and terrestrial, where available):
Very toxic to aquatic life with long lasting effects

Substance	Test Type	Species	Value
Silver	LC_{50}	Fish Pimephales promelas Oncorhynchus mykiss Lepomis macrochirus	0.00155 - 0.00293 mg/L 96h 0.0062 mg/L 0.064 mg/L
	EC_{50}	Invertebrates Daphnia magna	0.00024 mg/L 48h
	EC_{50}	Algae	None known
Diethylene glycol monobutyl ether	LC_{50}	Fish Lepomis macrochirus	1300 mg/L 96h
	EC_{50}	Invertebrates Daphnia magna	> 100 mg/L 48h
	EC_{50}	Algae Desmodesmus subspicatus	> 100 mg/L 96h
1,3-Butanediol	LC_{50}	Fish Freshwater fish	None known
	EC_{50}	Invertebrates Daphnia magna	None known
	EC_{50}	Algae Freshwater algae	None known

Persistence and Degradability:
Not determined

Bioaccumulative Potential:
Not determined

Mobility in Soil:
Not determined.

Other adverse effects (such as hazardous to the ozone layer):
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

Product
Do not allow product to reach sewage system.
Dispose of waste materials in accordance with applicable local and national laws and regulations. Where possible, recycling is preferred to disposal or incineration. Contact the proper local authorities.

Contaminated packaging
Since emptied containers retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport Information

UN number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (contains silver)
Transport hazard class(es):	9
Packing group, if applicable:	III

Environmental hazards
Marine pollutant: Yes

Transport in bulk (according to IMO instruments):
Not applicable

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.
None known

SECTION 15: Regulatory Information

USA:

United States Federal Regulations: This SDS complies with the OSHA, 29 CFR 1910.1200. The product is classified as hazardous under OSHA.

Toxic Substances Control Act (TSCA) – All of the ingredients are listed on the U.S. EPA TSCA Inventory List.

Emergency Planning and Community Right To-Know Act (EPCRA)
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): None listed

SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370 (amended 2018)):
Serious eye damage or eye irritation

Section 313 Toxic Chemicals (40 CFR 372.65):

Component Name	CAS number	Comment
Silver	7440-22-4	1.0 % de minimis concentration

STATE REGULATIONS:

This SDS contains specific health and safety data that is applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.

California Proposition 65 (California Safe Drinking Water and Toxic Enforcement Act of 1986: None listed.

Massachusetts Right to Know: Silver is listed on the Massachusetts Right to Know list.

New Jersey Right to Know Silver is listed on the New Jersey Right to Know List.

Pennsylvania Right to Know: Silver is listed on the Pennsylvania Right to Know List.

SECTION 16: Other Information

Initial document date: July 3, 2022
Revision Date: August 7, 2025
Revision number 3
Reason for revision: Correction of Name

DISCLAIMER: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 1910.1200. To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier nor any of its subsidiaries assume any liability whatsoever for completeness of the information

contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.