

MATERIAL SAFETY DATA SHEET

Silica-Shelled NanoXact™ Silver Nanoparticles (AGSH)

Manufacturer: nanoComposix, Inc.
4878 Ronson CT STE K
San Diego, CA 92111-1806

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CHEMTREC (EMERGENCY ONLY): (800) 424-9300
POISON CENTER: (800) 562-8236

SECTION 1 Product Identification

CHEMICAL NAME: Silica-shelled silver nanoparticles

CAS REGISTRY NUMBER: 7440-22-4 (silver); 7631-86-9 (silica colloid)

FORMULA: Ag, SiO₂

EINECS NUMBER: NA (See components)

CHEMICAL FAMILY: metal composite

SYNONYM: silica-shelled NanoXact silver nanoparticles, silver nanoparticles, silver composites, colloidal silver, colloidal silica

SECTION 2 Composition and Information on Ingredients

INGREDIENTS;	CAS #	% by Mass	Hazardous
Silver	7440-22-4	0.1	No
Silica	7631-86-9	< 0.6	No
Ethanol	64-17-5	> 99	No

SECTION 3 Hazards Identification

EMERGENCY OVERVIEW:

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

Flammable liquids (Category 2), H225.

HMIS CLASSIFICATION

Health Hazard: 2

Flammability: 3

Physical Hazards: 0

NFPA RATING

Health Hazard: 2

Fire: 3

Reactivity Hazard: 0

APPEARANCE: Yellow/brown, yellow/grey or yellow/opal colored liquid; opaque.

PRIMARY ROUTES OF EXPOSURE: Ingestion, dermal contact.

EYE CONTACT: May cause eye irritation. Prolonged exposure may cause eye damage.

SKIN CONTACT: May be harmful if absorbed through skin. May cause skin irritation.

INHALATION: May be harmful if inhaled. May cause respiratory tract irritation.

INGESTION: May be harmful if ingested.

ACUTE HEALTH EFFECTS: May be irritating to skin, eyes and digestive tract.

CHRONIC HEALTH EFFECTS: Repeated and prolonged exposures have not been studied.

AGGRAVATION of PRE-EXISTING CONDITIONS: Persons with preexisting conditions may be more susceptible.

SECTION 4 First Aid Measures

EYE EXPOSURE: Remove contacts if present. Immediately flush the eyes with water for at least 10-15 minutes. Seek medical attention if irritation persists.

SKIN EXPOSURE: Wash the affected area with soap and water. Remove contaminated clothes if necessary. Seek medical assistance if irritation persists.

INHALATION: If breathed in, move person to fresh air. If not breathing, give artificial respiration.

INGESTION: If the person is conscious, rinse their mouth out with water. Never give anything by mouth to an unconscious person.

SECTION 5 Fire Fighting Measures

FLASH POINT: 14.0 °C (57.2 °F) - closed cup

AUTO IGNITION TEMPERATURE: Not applicable.

EXPLOSION LIMITS: Not applicable.

EXTINGUISHING MEDIUM: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self contained breathing apparatus for fire fighting if necessary.

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: None.

UNUSUAL FIRE OR EXPLOSION HAZARDS: None.

SECTION 6 Accidental Release Measures

SPILL AND LEAK PROCEDURES: Small spills can be swept up or diluted flushed with water to dilute according to local, state, and federal disposal guidelines. Solid surface should be wiped with a detergent-based cleaner to clean any remaining materials.

SECTION 7 Handling and Storage

HANDLING: Avoid contact with skin, eyes and clothing. Avoid prolonged or repeat exposure.

STORAGE: Closed container stored at 4°C away from light. DO NOT FREEZE.

SECTION 8 Exposure Controls and Personal Protection

Control Parameters

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Ethanol	64-17-5	TWA	1000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Confirmed animal Carcinogen with unknown relevance to humanshumans		
		TWA	1000 ppm 1900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
			The value in mg/m3 is approximate	
		TWA	1000 ppm 1900 mg/m3	USA. NIOSH Recommended Exposure Limits

Exposure Controls:

EYE PRODUCTION: Always wear approved safety glasses when handling a chemical substance in the laboratory.

SKIN PROTECTION: Wear protective clothing and gloves.

VENTILIATION: None.

RESPIRATOR: Respiratory protection not required.

ADDITIONAL PROTECTION: No additional protection required.

SECTION 9 Physical and Chemical Properties

FORM:	Liquid, individual particles 20-150nm total diameter.
COLOR:	Yellow/brown, yellow/grey or yellow/opal; opaque.
MOLECULAR WEIGHT:	No data available.
MELTING POINT (°C):	No data available.
BOILING POINT (°C):	78.0 - 80.0 °C (172.4 - 176.0 °F)-Ethanol
VAPOR PRESSURE:	59.5 hPa (44.6 mmHg) at 20.0 °C (68.0 °F)-Ethanol
SPECIFIC GRAVITY:	0.7974 g/cm3
ODOR:	No data available.
SOLUBILITY IN WATER:	Completely Soluble.

SECTION 10 Stability and Reactivity

STABILITY: Stable under recommended storage conditions. DO NOT FREEZE.

POSSIBILITY OF HAZARDOUS REACTIONS: No data available.

CONDITIONS TO AVOID: No data available.

MATERIALS TO AVOID: No data available.

HAZARDOUS DECOMPOSITION PRODUCTS:

Hazardous decomposition products may be formed under fire conditions – Silver/silver oxides

Hazardous decomposition products may be formed under fire conditions – Nature of decomposition products not known.

SECTION 11 Toxicological Information**ACUTE TOXICITY**

Oral LD50: No data available.

Inhalation LD50:	No data available.
Dermal LD50:	No data available.
Other information on acute toxicity:	No data available.
SKIN CORROSION/IRRITATION:	No data available.
SERIOUS EYE DAMAGE/IRRITATION	No data available.
RESPIRATORY OR SKIN SENSITIZATION	No data available.
GERM CELL MUTAGENICITY	No data available.
CARCINOGENICITY-- Mouse - Oral	
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors. Blood: Lymphomas including Hodgkin's disease.-(Ethanol)	
IARC:	No component of this product is identified as a probable or confirmed human carcinogen by IARC.
ACGIH:	No component of this product is identified as a probable or confirmed human carcinogen by ACGIH.
NTP:	No component of this product is identified as a probable or confirmed human carcinogen by NTP.
OSHA:	No component of this product is identified as a probable or confirmed human carcinogen by OSHA.
REPRODUCTIVE TOXICITY:	Reproductive toxicity - Human - female - Oral
	Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects. Effects on Newborn: Drug dependence.
TERATOGENICITY:	No data available
SPECIFIC TARGET ORGAN TOXICITY	No data available
APIRATION HAZARD	No data available
POTENTIAL HEALTH EFFECTS	
Inhalation:	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion:	May be harmful if swallowed.
Skin:	May be harmful if absorbed through skin. May cause skin irritation.
Eyes:	May cause eye irritation.
SIGNS AND SYMPTOMS OF EXPOSURE:	May cause argyria (a slate-grey or bluish discoloration of the skin and deep tissues to the deposit of insoluble albuminate of silver.
SYNERGISTIC EFFECTS:	No data available.
ADDITIONAL INFORMATION:	RTECS: KQ6300000-(Ethanol)
Central nervous system depression, narcosis, Damage to the heart., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.	
Stomach - Irregularities - Based on Human Evidence	

SECTION 12 Ecological Information

APIRATION HAZARD	No data available.
PERSISTANCE AND DEGRADABILITY:	No data available.
BIOACCUMULATIVE POTENTIAL:	No data available.
MOBILITY IN SOIL:	No data available.
PBT AND vPvB ASSESSMENT:	No data available.
OTHER ADVERSE EFFECTS:	No data available.

SECTION 13 Disposal Considerations

DISPOSAL: Dispose of according to local, state and federal regulations.

SECTION 14 Transportation Information

DOT (US): UN number: 1170 Class: 3 Packing group: II

Proper shipping name: Ethanol

Reportable Quantity (RQ):

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG: UN number: 1170 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: ETHANOL

Marine pollutant: No

IATA: UN number: 1170 Class: 3 Packing group: II

Proper shipping name: Ethanol

SECTION 15 Regulatory Information

OSHA HAZARDS: No known OSHA hazards

DSL STATUS: All components of this product are on the Canadian DSL list

SARA 302 COMPONENTS: No chemicals in this material are subject the reporting requirements of SARA Section 302.

SARA 313 COMPONENTS: No chemicals in this material are subject to the reporting requirements of SARA Section 313.

SARA 311/312 HAZARDS: No SARA Hazards.

MA RIGHT TO KNOW COMPONENTS: No components are subject to the MA Right to Know Act.

PA RIGHT TO KNOW COMPONENTS:

INGREDIENTS;	CAS #	% by Mass	Hazardous
Silver	7440-22-4	0.1	No
Silica	7631-86-9	< 0.6	No
Ethanol	64-17-5	> 99	No

NJ RIGHT TO NOW COMPONENTS

INGREDIENTS;	CAS #	% by Mass	Hazardous
Silver	7440-22-4	0.1	No
Silica	7631-86-9	< 0.6	No
Ethanol	64-17-5	> 99	No

CA PROP 65 COMPONENTS: This product does not contain any chemicals known to the State of CA to cause cancer, birth defects, or any other reproductive harm.

SECTION 16 Other Information

DISCLAIMER: The information herein is believed to be accurate and reliable as of the date compiled. However, nanoComposix, Inc. makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information.

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