

# SAFETY DATA SHEET

Preparation Date: 07/11/2012  
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## SECTION 1: Identification

### Aminated NanoXact™ Silica Nanoparticles (SISN)

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

**NANOCOMPOSIX CUSTOMER SERVICE:** (858) 565-4227  
**CHEMTREC (EMERGENCY ONLY):** (800) 424-9300  
**POISON CENTER:** (800) 562-8236

**Relevant Identified Uses:** Laboratory chemicals, Manufacture substances

## SECTION 2: Hazards Identification

### EMERGENCY OVERVIEW:

**OSHA Hazards :** Inhalation of mist or dust may be harmful. Avoid repeated or prolonged breathing of spray mist or dust.

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

Specific target organ toxicity – repeated exposure (category 1), H372

Flammable liquids (Category 2), H225.

Eye irritation (Category 2A), H319

Pictogram



**Signal word** Danger

### HMIS CLASSIFICATION

Health Hazard: 2

Flammability: 3

Physical Hazards: 0

### NFPA RATING

Health Hazard: 2

Fire: 3

Reactivity Hazard: 0

**APPEARANCE:** Translucent to opaque white liquid when dispersed; material may settle.

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

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

**INHALATION:** May be harmful to the respiratory tract and lungs if dust is inhaled.

**INGESTION:** May be harmful if ingested.

**ACUTE HEALTH EFFECTS:** May be irritating to skin, eyes and digestive tract. Prolonged exposure to dust/mist can produce pneumoconiosis.

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

**AGGRAVATION of PRE-EXISTING CONDITIONS:** Prolonged inhalation of dust can increase lung injury in individuals with emphysema, asthma or other lung disorders.

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### SECTION 3: Composition and Information on Ingredients

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**CHEMICAL NAME:** Colloidal silica nanoparticle Dispersion

**CAS REGISTRY NUMBER:** 7631-86-9 (silica colloid)

**FORMULA:** SiO<sub>2</sub>, NH<sub>2</sub>

**EINECS NUMBER:** NA (See components)

**CHEMICAL FAMILY:** metal composite

**SYNONYM:** Aminated NanoXact™ silica nanoparticles, silicon dioxide nanoparticles, colloidal silicon dioxide, amorphous silica

INGREDIENTS	CAS #	% by Mass	Hazardous
Silica	7631-86-9	0.9-1.1%	No
Ethanol	64-17-5	>97-98	No

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### SECTION 4: First Aid Measures

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**PRIMARY ROUTES OF EXPOSURE:** Ingestion, dermal contact.

**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. Treat symptoms. If not breathing, give artificial respiration. Seek medical attention if necessary.

**INGESTION:** Do NOT induce vomiting. If the person is conscious, rinse their mouth out with water and give water. Never give anything by mouth to an unconscious person.

**MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:** The most important known symptoms and effects are described in section 2 and/or in section 11.

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### SECTION 5: Fire Fighting Measures

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**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.

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### SECTION 6: Accidental Release Measures

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**GENERAL PROTECTION:** See Section 8 for personal protection. Avoid breathing vapors, mist or gas.

**ENVIRONMENTAL PRECAUTIONS:** No special environmental precautions required.

**METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP:** 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

**PRECAUTIONS FOR SAFE HANDLING:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeat exposure.

**RECOMMENDED STORAGE:** Closed container stored at 2-25°C. DO NOT FREEZE.  
Storage class (TRGS 510): Non-Combustible Liquids

## SECTION 8: Exposure Controls and Personal Protection

### CONTROL PARAMETERS:

#### Components with control parameters

Components	CAS-No.	Value	Control parameters	Basis
Silicon dioxide	7631-86-9	TWA	20 Million particles per cubic foot	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
	Remarks	Based on impinger samples counted by light-field techniques. mppcf X 35.3 = million particles per cubic meter = particles per c.c		
		TWA	80mg/m3 / %SiO2	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
		TWA	6 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	6 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

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:

**APPROPRIATE ENGINEERING CONTROLS:** General industrial hygiene practice.

#### PERSONAL PROTECTIVE EQUIPMENT:

**EYE PROTECTION:** Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**SKIN PROTECTION:** Wear protective clothing and gloves.

**VENTILATION:** None.

**RESPIRATOR:** Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**ADDITIONAL PROTECTION:** No additional protection required.

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## SECTION 9: Physical and Chemical Properties

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<b>FORM:</b>	Liquid, individual particles 10- 1µm total diameter.
<b>APPEARANCE/COLOR:</b>	White Translucent liquid (<50 nm) to opaque white (larger particles, >50 nm).
<b>UPPER/LOWER FLAMMABILITY LIMIT:</b>	No data available.
<b>ODOR:</b>	No data available.
<b>VAPOR PRESSURE:</b>	No data available.
<b>ODOR THRESHOLD:</b>	No data available.
<b>VAPOR DENSITY:</b>	59.5 hPa (44.6 mmHg) at 20.0 °C (68.0 °F)-Ethanol
<b>pH:</b>	No data available.
<b>RELATIVE DENSITY:</b>	0.7974 g/cm <sup>3</sup> at 25 °C (77 °F)-Ethanol
<b>MELTING/FREEZING POINT (°C):</b>	1995 °C/No data available
<b>SOLUBILITY:</b>	No data available.
<b>BOILING POINT (°C):</b>	78.0 - 80.0 °C (172.4 - 176.0 °F)-Ethanol
<b>FLASH POINT (°C):</b>	16.60 °C (61.88 °F)-Ethanol
<b>EVAPORATION RATE:</b>	No data available.
<b>FLAMMABILITY:</b>	No data available.
<b>PARTITION COEFFICIENT:</b>	No data available.
<b>AUTO-IGNITION TEMPERATURE (°C):</b>	No data available.
<b>DECOMPOSITION TEMPERATURE (°C):</b>	No data available.
<b>MOLECULAR WEIGHT:</b>	No data available.
<b>VISCOSITY:</b>	No data available.
<b>SPECIFIC GRAVITY:</b>	No data available.

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## SECTION 10: Stability and Reactivity

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**REACTIVITY:** No data available.

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

**OTHER:**

**POSSIBILITY OF HAZARDOUS REACTIONS:** Avoid contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) which can generate heat, splattering or boiling and the release of toxic fumes. Avoid contact with aluminum

**CONDITIONS TO AVOID:** No data available.

**MATERIALS TO AVOID:** Alkali metals, Oxidizing agents, Peroxides.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hazardous decomposition products may be formed under fire conditions – Silicon oxides –See section 5 the event of fire. Nature of decomposition products not known.

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## SECTION 11: Toxicological Information

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**HUMAN HAZARD CHARACTERIZATION:** Although amorphous silica is not a carcinogen as purchased in this product, portions of it may convert to crystalline silica (cristobalite) when subjected to higher temperatures (1700°F). IARC and NTP define silica, crystalline (respirable) as a known human carcinogen

### 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

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors. Blood: Lymphomas including Hodgkin's disease.-(Ethanol)

**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.

**ACGIH:** 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 ACGIH.

**NTP:** 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 NTP.

**OSHA:** 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 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. (Ethanol)

**TERATOGENICITY:** No data available

**SPECIFIC TARGET ORGAN TOXICITY** No data available

**ASPIRATION 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:** Exposure to silica compounds can cause contact dermatitis. The toxicological properties have not been thoroughly investigated. The data supplied are for closely related compounds. No data available.

**SYNERGISTIC EFFECTS:** No data available.

**ADDITIONAL INFORMATION:** RTECS: KQ630000-(Ethanol)

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## SECTION 12: Ecological Information

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**AQUATIC/TERRESTRIAL ORGANISM TOXICITY:** No data available.

<b>ASPIRATION HAZARD</b>	No data available.
<b>PERSISTANCE AND DEGRADABILITY:</b>	No data available.
<b>BIOACCUMULATIVE POTENTIAL:</b>	No data available.
<b>MOBILITY IN SOIL:</b>	No data available.
<b>PBT AND vPvB ASSESSMENT:</b>	No data available.
<b>OTHER ADVERSE EFFECTS:</b>	No data available.

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## SECTION 13: Disposal Considerations

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**DISPOSAL:** Dispose of according to local, state and federal regulations. (Refer to Section 8)

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## SECTION 14: Transportation Information

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<b>DOT (US):</b> UN number: 1170 Class: 3	Packing group: II	
Proper shipping name: Ethanol		
Reportable Quantity (RQ):		
Marine pollutant: No		
Poison Inhalation Hazard: No		
<b>IMDG:</b> UN number: 1170 Class: 3	Packing group: II	EMS-No: F-E, S-D
Proper shipping name: ETHANOL		
Marine pollutant: No		
<b>IATA:</b> UN number: 1170 Class: 3	Packing group: II	
Proper shipping name: Ethanol		
<b>SHIPPING NAME (CFR):</b>	Non-hazardous.	
<b>SHIPPING NAME (IATA):</b>	Non-hazardous.	

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## SECTION 15: Regulatory Information

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**OSHA HAZARDS:** This product is classified as a hazardous chemical. Silica (amorphous) =TWA 10 mg/m<sup>3</sup> (ACGIH) 6 mg/m<sup>3</sup> OSHA. Target Organ Effect, Irritant.

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

**TOXIC SUBSTANCE CONTROL ACT:** The chemical ingredients in this product are on the 8 (b) Inventory List (40 CFR 710).

**CERCLA/SUPERFUND, 40 CFR 117,302:** Notification of spills of this product is not required.

**CANADIAN WHMIS:** This is a controlled product under The House of Commons of Canada Bill C-71 (Class D2B)

**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:**

<b>INGREDIENTS</b>	<b>CAS #</b>	<b>% by Mass</b>	<b>Hazardous</b>
Silica	7631-86-9	0.9-1.1%	No
Ethanol	64-17-5	>97-98	No

**NJ RIGHT TO NOW COMPONENTS**

<b>INGREDIENTS</b>	<b>CAS #</b>	<b>% by Mass</b>	<b>Hazardous</b>
Silica	7631-86-9	0.9-1.1%	No
Ethanol	64-17-5	>97-98	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.

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**SECTION 16 Other Information**

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**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.