SAFETY DATA SHEET

Preparation Date: 06/11/2019
Revision Date:

SECTION 1: Identification

Aminated Mesoporous NanoXact™ Silica Nanoparticle Powder (SHAD)

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

Pictogram

Signal word Danger

HMIS CLASSIFICATION

Health Hazard:	2
Flammability:	0
Physical Hazards:	0

NFPA RATING

Health Hazard:	2
Fire:	0
Reactivity Hazard:	0

APPEARANCE: Dry crystalline powder.

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 powder 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 powder can increase lung injury in individuals with emphysema, asthma or other lung disorders.

SECTION 3: Composition and Information on Ingredients

CHEMICAL NAME: Colloidal silica nanoparticle Dispersion

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

FORMULA: SiO_2

EINECS NUMBER: NA (See components)

CHEMICAL FAMILY: metal composite

SYNONYM: NanoXact™ mesoporous silica nanoparticles, mesoporous silicon dioxide nanoparticle powder, dry mesoporous silicon dioxide, amorphous silica

			Exposure Limits in Air		
INGREDIENTS;	**CAS #**	**% by Mass**	**ACGIH TLV or TWA**	**OSHA PEL**	**Hazardous**
Silica	7631-86-9	>99%	6mg/m3	20Million particles per cubic foot	No

SECTION 4: First Aid Measures

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.

SECTION 5: Fire Fighting Measures

FLASH POINT: Not applicable.

AUTO IGNITION TEMPERATURE: Not applicable.

EXPLOSION LIMITS: Not applicable.

EXTINGUSHING 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

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: Use in well ventilated areas. Observe good housekeeping practices. Avoid contact with skin, eyes and clothing. Avoid prolonged or repeat exposure.

RECOMMENDED STORAGE: Keep container closed when not in use and store in a dry area or desiccator.
Storage class (TRGS 510): Non-Combustible solid

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)

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.

VENTILIATION: General ventilation recommended.

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. Eyewash, safety shower, and impervious clothing are recommended.

SECTION 9: Physical and Chemical Properties

FORM:	Dry Powder, individual particles 10nm – 1µm total diameter.
APPEARANCE/COLOR:	White/colorless.
UPPER/LOWER FLAMMABILITY LIMIT:	No data available.
ODOR:	No data available.
VAPOR PRESSURE:	No data available.
ODOR THRESHOLD:	No data available.
VAPOR DENSITY:	No data available.
pH:	No data available.
RELATIVE DENSITY:	No data available.
MELTING/FREEZING POINT (°C):	No data available
SOLUBILITY:	No data available.
BOILING POINT (°C):	No data available.
FLASH POINT (°C):	No data available.
EVAPORATION RATE:	No data available.
FLAMMABILITY:	No data available.
PARTITION COEFFICIENT:	No data available.
AUTO-IGNITION TEMPERATURE (°C):	No data available.
DECOMPOSITION TEMPERATURE (°C):	No data available.
MOLECULAR WEIGHT:	No data available.
VISCOSITY:	No data available.
SPECIFIC GRAVITY:	No data available.

SECTION 10: Stability and Reactivity

REACTIVITY: No data available.

CHEMICAL STABILITY: Stable under recommended storage conditions. Silica is soluble in water; significant dilution or washing with water or other solvents may cause particles to dissolve. 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: Strong oxidizing agents.

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.

SECTION 11: Toxicological Information

HUMAN HAZARD CHARACTERIZATION: Potential human hazard is low. 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:	Rat – 3,160 mg/kg.
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

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:	No data available
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 not available.

SECTION 12: Ecological Information

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

AQUATIC/TERRESTRIAL ORGANISM TOXICITY:	No data available.
ASPIRATION 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. (Refer to Section 8)

SECTION 14: Transportation Information

DOT (US):	Not dangerous goods.
IMDG:	Not dangerous goods.
IATA:	Not dangerous goods.
SHIPPING NAME (CFR):	Non-hazardous.
SHIPPING NAME (IATA):	Non-hazardous.

SECTION 15: Regulatory Information

OSHA HAZARDS: This product is classified as a hazardous chemical. Silica (amorphous) =TWA 10 mg/m3 (ACGIH) 6 mg/m3 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:

			Exposure Limits in Air		
INGREDIENTS;	**CAS #**	**% by Mass**	**ACGIH TLV or TWA**	**OSHA PEL**	**Hazardous**
Silica	7631-86-9	>99%	6mg/m3	20Million particles per cubic foot	No

NJ RIGHT TO NOW COMPONENTS:

			Exposure Limits in Air		
INGREDIENTS;	**CAS #**	**% by Mass**	**ACGIH TLV or TWA**	**OSHA PEL**	**Hazardous**
Silica	7631-86-9	>99%	6mg/m3	20Million particles per cubic foot	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.