

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: Causes damage to lungs through prolonged or repeated exposure by inhalation

Pictogram



Signal word: Danger

Flammable liquids (Category 2), H225: Highly flammable liquid and vapor. Flash point < 3°C (73.4°F) and initial boiling point > 35°C (95°F).

Pictogram



Signal word: Warning

Eye irritation (Category 2A), H319: Causes serious eye damage / eye irritation (2A).

Pictogram



Signal word: Warning

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.

SECTION 3: Composition and Information on Ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

INGREDIENTS	CAS #	EINECS Number (EC No.)	% by Mass (Concentration)	Hazardous
Silica	7631-86-9	231-545-4	0.45-0.55%	No
Ethanol	6441755	200578-6	>99 No >99	No No

CHEMICAL NAME: Colloidal silica nanoparticle dispersion

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

FORMULA: SiO₂, NH₂

EINECS NUMBER: NA (See components)

CHEMICAL FAMILY: metal composite

SYNONYM: Aminated Mesoporous NanoXact™ silica nanoparticles, mesoporous silicon dioxide nanoparticles, colloidal mesoporous silicon dioxide, amorphous mesoporous silica.

SECTION 4: First Aid Measures



4.1 Description of Necessary First-Aid Measures

If inhaled	If breathed in, move person to fresh air. Treat symptoms. If not breathing, give artificial respiration. Seek medical attention if necessary
In case of skin contact	Wash the affected area with soap and water. Remove contaminated clothes if necessary. Seek medical assistance if irritation persists.
In case of eye contact	Remove contacts if present. Immediately flush the eyes with water for at least 10-15 minutes. Seek medical attention if irritation persists.
If swallowed	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.

PRIMARY ROUTES OF EXPOSURE: Ingestion, dermal contact.

4.2 Most Important Symptoms/Effects, Acute and Delayed

The most important known symptoms and effects are described in section 2 and/or in section 11.

4.3 Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Treat symptomatically and supportively. Immediate medical attention is not required.

SECTION 5: Fire Fighting Measures

5.1 Suitable Extinguishing Media

Flammable in the presence of a source of ignition, through friction or retained heat. Keep away from heat/sparks/open flame/hot surface. No smoking. Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide as appropriate for surrounding fire.



5.2 Specific Hazards Arising from the Chemical

No data Available.

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: Silicon oxides.

UNUSUAL FIRE OR EXPLOSION HAZARDS: None.

5.3 Special Protective Actions for Fire-fighters

Wear self-contained breathing apparatus for firefighting, if necessary.

Further Information

Use water spray to cool unopened containers.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

See Section 8 for personal protection. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.

6.2 Environmental Precautions

No special environmental precautions required.

6.3 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.

Reference to Other Sections

See Section 8 for personal protection. Avoid breathing vapors, mist, or gas. For disposal see Section 13.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

Handle in accordance with good industrial hygiene and safety practices. Use in well ventilated. Observe good housekeeping practices. Avoid contact with skin, eyes, and clothing. Avoid prolonged or repeat exposure.



7.2 Conditions for Safe Storage, Including any Incompatibilities

Keep container closed when not in use Closed container stored at 2-25°C. DO NOT FREEZE.

Storage class (TRGS 510): Non-Combustible Liquids

Specific End Use(s)

Apart from the uses mentioned in Section 1 no other specific uses are stipulated.

SECTION 8: Exposure Controls and Personal Protection

8.1 Control Parameters

Component	CAS #	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	80 mg / m ³ / %SiO ₂	USA. Occupational Exposure Limits (OSHA) – Table Z-3 Mineral Dusts
		TWA	6 mg / m ³	USA. NIOSH Recommended Exposure Limits
		PEL	6 mg / m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
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 humans.		
		TWA	1000 ppm 1900 mg / m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
	Remarks	The value in mg / m ³ is approximate.		
		TWA	1000 ppm 1900 mg / m ³	USA. NIOSH Recommended Exposure Limits

8.2 Appropriate Engineering Controls

General industrial hygiene practice.

8.3 Individual Protection Measures, such as Personal Protective Equipment (PPE)

Pictograms



EYE PROTECTION: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Use protective eyewear to guard against splash of liquids.



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.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

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

9.2 Other Information

Information with regard to physical hazard classes: Hazard classes according to GHS (physical hazards): Not Relevant

SECTION 10: Stability and Reactivity

10.1 Reactivity

No data available.

10.2 Chemical Stability

Stable under recommended storage conditions. DO NOT FREEZE.

10.3 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.

10.4 Conditions to Avoid

DO NOT FREEZE

10.5 Incompatible Materials

Alkali metals, Oxidizing agents, Peroxides.

10.6 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

11.1 Information on Toxicological Effects

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation.

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

Based on available data, classification data are not met.

Oral LD50: No data available.

Inhalation LD50: No data available.

Dermal LD50: No data available.

Other information on acute toxicity: No data available.

Components:

Silica	7631-86-9	>99%	No
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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.

TOXICITY No data available.

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

OTHER ADVERSE EFFECTS: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. No ecological problems are to be expected when the product is handled and used with due care and attention.

SECTION 13: Disposal Considerations

Disposal of Product: Dispose of according to local, state, and federal regulations. Local regulations may be more stringent than State or Federal Requirements. (Refer to Section 8)

Disposal of Contaminated Packaging: Dispose of as unused product.

SECTION 14: Transportation Information

14.1 UN-Number

See 14.3 below

14.2 UN Proper Shipping Name

ETHANOL

14.3 Transport Hazard Class(es)

DOT (US): UN number: 1170 Class: 3 Packing group: II
Proper shipping name: Ethanol
Reportable Quantity (RQ):

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

IATA: UN number: 1170 Class: 3 Packing group: II
SHIPPING NAME (CFR): Non-hazardous.
SHIPPING NAME (IATA): Non-hazardous.

14.4 Packing Group

Group II – Substances presenting medium danger: Ethanol

14.5 Environmental Hazards

Marine pollutant: No

Poison Inhalation Hazard: No

14.6 Special Precautions for User

No data available

14.7 Transport in Bulk According to Annex II of MARPOL and the IBC Code

Not Applicable

SECTION 15: Regulatory Information

15.1 Safety, Health, and Environmental Regulations Specific for the Product in Question

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	20 million particles per cubic foot	No
Ethanol	64-17-5	>99%	>99 1000ppm	1900 mg / m3	No

NJ RIGHT TO NOW COMPONENTS:

Exposure Limits in Air

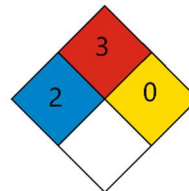
INGREDIENTS;	CAS #	% by Mass	ACGIH TLV or TWA	OSHA PEL	Hazardous
Silica	7631-86-9	>99%	6mg/m3	20 million particles per cubic foot	No
Ethanol	64-17-5	>99%	>99 1000ppm	1900 mg / m3	No

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.

HMIS Rating

Health	2
Flammability	3
Instability	0
Personal Protection	

NFPA Rating



SECTION 16 Other Information

16.1 Further Information/Disclaimer

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