

(HAZARDS IDENTIFICATION - Continued)

lung effects associated with crystalline silica.

Epidemiology studies have not shown any evidence of fibrosis in workers exposed to Amorphous Silica dust levels ranging from 2 to 7 mg/m³.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

Flush skin with water after contact. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be beneficial. Suspend 50 g activated charcoal in 400 mL water and mix well. Administer 5 mL/kg, or 350 mL for an average adult.

FIRE FIGHTING MEASURES

Flammable Properties

This material does not pose a fire or explosion hazard.

Extinguishing Media

Use media appropriate for surrounding material.

Fire Fighting Instructions

Evacuate personnel to a safe area. Isolate area.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Ventilate spill area.

Initial Containment

Dike spill.

Spill Clean Up

Soak up with sawdust, sand, oil dry or other absorbent material.

HANDLING AND STORAGE

Handling (Personnel)

Do not get in eyes. Avoid inhalation. Avoid contact with skin. Avoid contact with clothing. Wash thoroughly after handling. Wash clothing after use.

Handling (Physical Aspects)

Close container after each use.

Storage

Store in a well ventilated place. Close container after each use.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation.

Personal Protective Equipment

EYE/FACE PROTECTION

Wear coverall chemical splash goggles.

RESPIRATORS

Wear NIOSH approved respiratory protection, as appropriate.

PROTECTIVE CLOTHING

Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, and jacket.

Exposure Guidelines

Applicable Exposure Limits

Colloidal Silica

PEL (OSHA) : 80 mg/m³ / % SiO₂ - 8 Hr TWA
AEL * (DuPont) : 3 mg/m³, 8 & 12 Hr. TWA, respirable dust

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point : 100 C (212 F)
pH : 2-4
Odor : None.
Form : Liquid Dispersion.
Color : Milky, White.
Vapor Pressure : Same as water
Specific Gravity : 1.1-1.5
Solubility in Water : Silica Dispersion in water
Evaporation Rate : Same as water

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Perishable if frozen (Silica will agglomerate). Do NOT allow to freeze!

Incompatibility with Other Materials

Material is perishable if frozen (non-hazardous, irreversible silica agglomeration). Do NOT allow to freeze. Store at >40 degF.

Decomposition

Decomposition will not occur.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Colloidal Silica:

Oral LD50: >10,000 mg/kg in rats

Animal testing indicates Colloidal Silica is a mild eye irritant. It is a negligible to slight skin irritant when tested as a 50% aqueous paste. The dust is not expected to be a skin irritant. Animal testing indicates Colloidal Silica is not a skin sensitizer. Single, repeated and long-term exposure by ingestion to Colloidal Silica caused no significant toxicological effects. Single exposure by inhalation to Colloidal Silica caused no significant toxicological effects. Repeated exposure caused pulmonary changes including reversible inflammation. Long-term exposure caused pulmonary changes including reversible inflammation, vascular obstruction and emphysema. Animal testing indicates Colloidal Silica does not have carcinogenic or reproductive effects. No animal data are available to define the developmental toxicity of Colloidal Silica. Colloidal Silica has not produced genetic damage in bacterial cultures. It has not been tested for genetic toxicity in mammalian cell cultures or in animals.

ECOLOGICAL INFORMATION

Ecotoxicological Information

No information is available.

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

REGULATORY INFORMATION

U.S. Federal Regulations

This product complies with TSCA inventory reporting requirements.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : Yes
Fire : No
Reactivity : No
Pressure : No

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 0
Reactivity : 0

Suggested HMIS ratings are based on characteristics of components where a specific product has not been tested. The component with the most significant hazard potential determines the rating for the mixture when the mixture is not tested.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : DuPont AirProducts Nanomaterials L.L.C.
MSDS Coordinator
Telephone : 757-686-8663 OR 919-248-5027

(Continued)

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS