

MATERIAL SAFETY DATA SHEET

Section I - Identity

PRODUCT NAME: TM-200

Supplier:

Filter Innovations Inc.
744 Gordon Baker Road
North York, ON M2H 3B4
Tel: 416.490.7848

Section II - Hazardous Ingredients/Identity Information

Hazardous Components - (Specific Chemical Identity: Common Names)

	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED	%
Crystalline Quartz: CAS# 14808-60-7				< 6%
Respirable Crystalline Quartz:			NIOSH	
Present (TWA)	0.1 mg/m ³	0.1 mg/m ³	50 ug/m ³	
Proposed (TWA)		50.0 ug/m ³		
Nuisance Dust:				
Respirable	5 mg/m ³	5 mg/m ³		
Total Dust	15 mg/m ³	10 mg/m ³		

* **WARNING:** This product contains a small amount of crystalline silica, which may cause delayed respiratory disease if inhaled over a prolonged period of time. Avoid breathing dust. Use NIOSH/MSHA approved respirator where TLV for crystalline silica (Quartz) may be exceeded. IARC Monographs on the evaluation of the Carcinogenic Risk of Chemicals to Humans (volume 68, 1997) concludes that crystalline silica is carcinogenic to humans in the form of quartz. IARC classification 1.

The small quantities of crystalline silica (quartz) found in this product are, under normal conditions, naturally coated with an irremovable layer of amorphous silica and/or bentonite clay. IARC (vol. 68, 1997, pg. 191-192) has stated that crystalline silica (quartz) can differ in toxicity depending on the minerals with which it is combined, citing studies in IARC (vol. 42, 1987, p. 86) which stated that the toxic effect of crystalline silica (quartz) is reduced by the "protective effect...due mainly to clay minerals..."

National Institute for Occupational Safety and Health (NIOSH) has recommended that the permissible exposure limit be changed to 50 micrograms respirable free silica per cubic meter of air (0.05 mg/m³) as determined by a full shift sample up to a 10 hour working day, 40 hours per week. See: 1974 NIOSH criteria for a recommended Standard for Occupational Exposure to Crystalline Silica should be consulted for more detailed information.

PEL - OSHA Permissible Exposure Limit.

TLV - American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value.

TWA - 8 hour time weighted average

Note: The Permissible Exposure Limits (PEL) reported above are the pre - 1989 limits that were reinstated by OSHA June 30, 1993 following a decision by the United States Circuit Court of Appeals for the 11th Circuit. Federal OSHA is now enforcing these PELs. More restrictive exposure limits may be enforced by some other jurisdictions.

Section III - Physical/Chemical Characteristics

Boiling Point: N/A

Vapor Pressure (mm Hg): N/A

Vapor Density (AIR = 1): N/A

Specific Gravity (H₂O = 1): 1.7 g/cc real density

Melting Point: 1400F

Evaporation Rate (Butyl Acetate =1): N/A

Solubility in Water: Negligible

Appearance and Odor: Plain tan to buff coloured granules and/or powder with negligible odor

Section IV - Fire and Explosion Hazard Data

Flash point (Method Used): Not Available

Flammable Limits in Air % by Volume: Not Available

LEL: N/A

UEL: N/A

Extinguishing Media: N/A

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards: Product may pose possible dust explosion under extremely rare circumstance or conditions

Section V - Reactivity Data

Stability: stable

Conditions to Avoid: None

Incompatibility (Materials to Avoid): Powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, etc.

Hazardous Decomposition or By-products: Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

Hazardous Polymerization: May Occur

Section VI - Health Hazard Data

Primary Routes of Entry: Inhalation: Yes
 Skin: Yes
 Ingestion: Yes

Health Hazards (Acute and Chronic):

Inhalation: Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may have the following serious chronic health effects:

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. Smoking exacerbates this disease. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1 - carcinogenic to humans). Refer to *IARC Monograph 68, Silica, Some Silicates and Organic Fibers* (published in June 1997) in conjunction with the use of these materials. The National Toxicology Program classifies respirable crystalline silica as “reasonably” anticipated to be a carcinogen”. For further information See: “Adverse effects of Crystalline Silica Exposure” published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, page 761-765, 1997.

Other Data with Possible Relevance to Human Health: The small quantities of crystalline silica (quartz) found in this product are, under normal conditions, naturally coated with an irremovable layer of amorphous silica and/or bentonite clay. IARC (Vol. 68, 1997, pg. 191-192) has stated that crystalline silica (quartz) can differ in toxicity depending on the minerals with which it is combined, citing studies in IARC (Vol. 42, 1987 pg. 86) which stated that the toxic effect of crystalline silica (quartz) is reduced by the “protective effect....due mainly to clay minerals...”.

Carcinogenicity: NTP? No IARC Monographs? Yes OSHA Regulated? No

Signs and Symptoms of Exposure: **Excessive inhalation of generated dust may result in shortness of breath and reduced pulmonary function.**

Medical Conditions Generally Aggravated by Exposure: **Individuals with respiratory disease, including but not limited to, asthma and bronchitis, or subject to eye irritation should not be exposed to respirable crystalline silica (quartz) dust.**

Emergency and First Aid Procedures:

Eyes & Skin: Flush with water.

Gross Inhalation of Dust: Remove to fresh air; give oxygen or artificial respiration if necessary; seek medical attention.

Ingestion: If large amounts are swallowed, get immediate medical attention.

Section VII - Precautions For Safe Handling and Use

Steps to be taken in Case Material is Released or Spilled: Vacuum if possible to avoid generating airborne dust. Avoid breathing dust. Wear an approved respirator. Avoid adding water; product will become slippery when wet.

Waste Disposal Method: Bury in an approved sanitary landfill, in accordance with federal, state and local regulations.

Precautions to Be Taken in Handling and Storing: Avoid breathing dust, use NIOSH/MSHA approved respirator where TLV limits for Crystalline Silica may be exceeded.

Other Precautions: Slippery when wet.

Section VIII - Control Measures

Respiratory Protection: Use appropriate respiratory protection for respirable particulate based on consideration of airborne workplace concentration and duration of exposure arising from intended end use. Refer to the most recent standards of ANSI (z88.2) OSHA (29 CFR 1910.134), MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic.

Ventilation: Use local exhaust as required to maintain exposures below applicable occupational exposure limits (See Section II). See also ACGIH "Industrial Ventilation – A Manual for Recommended Practice", (current edition).

Protective Gloves: Not Required.

Eye Protection: Recommended.

Other Protective Clothing or Equipment: None.

Work/Hygienic Practices: Use good housekeeping practices.

Section IX - Regulatory Information

SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Chronic Health

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA section 103 Reportable Quantity: None

California Proposition 65: *This product contains the following substances known to the state of California to cause cancer and/or reproductive harm: This product contains crystalline silica (respirable); however, the user should note that the small quantities of crystalline silica (quartz) found in this product are, under normal conditions, naturally coated with an irremovable layer of amorphous silica and/or bentonite clay. IARC (Vol. 68, 1997, pg. 191-192) has stated that crystalline silica (quartz) can differ in toxicity depending on the minerals with which it is combined. Citing studies in IARC (Vol. 42, 1987, p. 86) which stated that the toxic effect of crystalline silica (quartz) is reduced by the "protective effect....due mainly to clay minerals..."*

Toxic Substances Control Act: All of the components of this product are listed on the EPA TSCA Inventory or are exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements. (The EINECS number for Quartz: 231-545-5)

European Community Labeling Classification: Harmful (Xn)

European Community Risk and Safety Phrases: R40, R48, S22

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law.

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Class D, Division 2, Subdivision A (Very Toxic Material causing other Toxic Effects)

<u>NF-PA Hazard Rating:</u> Health: 2	Fire: 0	Reactivity: 0
<u>HMIS Hazard Rating:</u> Health: *	Fire: 0	Reactivity: 0

*Warning - Chronic health effect possible - inhalation of silica dust may cause lung injury/disease (silicosis). Take appropriate measures to avoid breathing dust. See *Section II*.

REFERENCES: Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

NTP Seventh Annual Report on Carcinogens, 1994.

IARC Monograph Volume 68, Silica, Some Silicates and Organic Fibers, 1997.

******The information contained herein is accurate to the best of our knowledge. Filter Innovations Inc. makes no warranty with respect hereto said information and disclaims all liability from reliance there in ******