

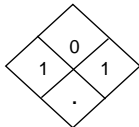
**ZMM<sup>®</sup> Canada Minerals Corp.**   
**ZMM<sup>®</sup> Diatomaceous Earth**

## Safety Data Sheet

Abbreviations used on this Safety Data Sheet:

N/av. = Not available, N/ap. = Not applicable, ppm = parts per million, TLV = Threshold Limit Value. NFPA

Hazard Rating: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-None, X-Blank

| SECTION I - IDENTIFICATION OF THE MATERIAL AND SUPPLIER |  |   |  |
|---|--|---|--|
| PRODUCT NAME:   |  |  | 4 - extreme<br>3 - high<br>2 - moderate<br>1 - slight<br>0 - insignificant |
| OTHER NAMES:  | <b>Diatomaceous Earth/Amorphous Silica</b> |   |  |
| MATERIAL USE:   |  |   |  |
| MANUFACTURER'S NAME:                                    | <b>ZMM Canada Minerals Corp.</b>           |   |  |
| STREET ADDRESS:   | <b>6459 Mack Road</b>                      |   |  |
| CITY/PROVINCE:  | <b>Peachland, BC</b>                       |   |  |
| POSTAL CODE:  | <b>V0H 1X8</b>                             |   |  |
| EMERGENCY TELEPHONE NUMBER:                             | <b>250-767-6788</b>                        | <b>NFPA HAZARD RATING:</b><br>Health - 1, Flammability - 0, Reactivity - 1          |  |

### SECTION II - HAZARD IDENTIFICATION

**SUMMARY:** Prolonged and repeated exposure to excessive concentrations of this product's dust containing respirable size ( $\leq 10 \mu$ ) quartz, or any nuisance dust, can cause chronic pulmonary disease. Dust contact with eyes may cause temporary scratchiness or redness. Long term exposure can cause silicosis. The NTP (National Toxicology Program) and IARC (International Agency for Research on Cancer) has determined that crystalline silica inhaled from **occupational sources** can cause cancer in humans. Risk of injury is dependent on the duration and level of exposure. **A single exposure under normal conditions of use will not result in serious adverse effects.**



**MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED:** Pre-existing upper respiratory and lung disease, such as, but not limited to: Bronchitis, emphysema, and asthma.

**TARGET ORGAN(S):** Lungs, Eyes

See SECTION X1 - TOXICOLOGICAL INFORMATION

### SECTION III - COMPOSITION OF SUBSTANCE

| HAZARDOUS INGREDIENTS  | %    | CAS NUMBER | OSHA PEL (ACGIH TLV) | LD50/ LC 50 SPECIES AND ROUTE |
|--|------|------------|----------------------|-------------------------------|
| <b>Naturally Occurring Diatomaceous Earth</b><br>(Typical Analysis = 67% Silicon Dioxide)        | 100% | 61790-53-2 | See Section VIII     | N/av. N/av.                   |
| <b>Free Crystalline Silica or Silica, quartz</b><br><br>(Occurs naturally in Diatomaceous Earth) | <1%  | 14808-60-7 | See Section VIII     |                               |

**For sampling silica dusts refer to NIOSH Analytical Method 7500 or OSHA method ID 142**

### SECTION IV - FIRST AID MEASURES

|                    |  |
|--------------------|--|
| <b>Inhalation:</b> | Remove victim to fresh air. If breathing has stopped, a trained person should perform artificial respiration. Acute inhalation can cause dryness of the nasal passage and congestion of the upper respiratory tract. |
| <b>Ingestion:</b>  | Do not induce vomiting. Short-term exposure not considered harmful. Drink generous amounts of water to reduce bulk and drying effects.   |
| <b>Eyes:</b>       | Wash with large quantities of water. Consult physician if irritation persists. May cause irritation/inflammation.  |
| <b>Skin:</b>       | May cause dryness. Remove contaminated clothing. Wash with soap and water until clean. Use moisture renewing lotions if dryness persists. Product is not absorbed through or by the skin.                            |

### SECTION V - FIREFIGHTING MEASURES

|                               |                            |   |
|-------------------------------|----------------------------|---|
| <b>Flammability</b>           | No                         |   |
| Means of Extinction           | N/ap.                      | Upper Flammability Limit (% by Volume) <b>N/ap.</b> |
| Flashpoint (Method)           | <b>Non Flammable N/ap.</b> | Lower Flammability Limit (% by Volume) <b>N/ap.</b> |
| Auto ignition temperature     | N/ap.                      | Extinguishing Media <b>N/ap.</b>                    |
| Hazardous Combustion Products |                            | Special Procedures <b>N/ap.</b>                     |
| <b>Explosion Data</b>         | No                         |   |
| Sensitivity to Impact         |                            | Sensitivity to Static Discharge <b>No</b>           |

### SECTION VI - ACCIDENTAL RELEASE MEASURES

**PROCEDURE FOR SPILLS / LEAKS:** Avoid creating further dust. Vacuum with equipment fitted with a filter. Alternatively, wet sweep or wash away. Dispose of in accordance with local, State, and Federal Regulations.

**SECTION VII - HANDLING AND STORAGE**

**HANDLING PROCEDURES:** Avoid creating dust. Repair or properly dispose of broken bags. Use wet process or enclosed handling.

**STORAGE REQUIREMENTS:** Store in a dry place to maintain. Keep containers closed and in good condition. Repair damaged containers.

**SECTION VIII - EXPOSURE CONTROLS AND PERSONAL PROTECTION**

| PERMISSIBLE EXPOSURE LIMITS:    | OSHA PEL               | ACGIH                  | OHS                    | OHS STEL |
|---------------------------------|------------------------|------------------------|------------------------|----------|
| (for airborne, nuisance dusts)  | 8 hr TWA               | TLV                    | 8 hr TWA               |          |
| Diatomaceous earth              |                        |                        |                        |          |
| Total dust                      | 15 mg/m <sup>3</sup>   | Not detected           | 4 mg/m <sup>3</sup>    | n/a      |
| Respirable dust                 | 5 mg/m <sup>3</sup>    | Not detected           | 1.5 mg/m <sup>3</sup>  | n/a      |
| Crystalline quartz (respirable) | 0.05 mg/m <sup>3</sup> | 0.025mg/m <sup>3</sup> | 0.025mg/m <sup>3</sup> | n/a      |

**EFFECTS OF CHRONIC EXPOSURE TO PRODUCT.** Exposure to quantities of crystalline silica respirable dust ( $\leq 10 \mu$ ), in the forms of quartz, cristobalite or tridymite, may occur when in the presence of airborne dust. If the dust concentration levels are in excess of the OSHA Permissible Limit (PEL-TWA 8hrs) of 0.05mg/m<sup>3</sup> or the ACGIH Threshold Limit Value (TLV) of 0.025mg/m<sup>3</sup>, the crystalline silica present is a known cause of silicosis, a progressive, sometimes fatal, lung disease. From the International Agency for Research on Cancer (IARC), a 2012 review of "Silica Dust, Crystalline, in the form of Quartz or Cristobalite" coded Monograph 100C concluded that Crystalline Silica in the form of quartz or cristobalite dust is carcinogenic to humans (Group 1).

**ENGINEERING CONTROLS (SPECIFY, E.G. VENTILATION, ENCLOSED PROCESS)**

Control within recommended TLV/PEL, mechanical filtration to minimize dust. Refer to ACGIH publication "Industrial Ventilation" or similar publications for design of ventilation systems.

**PERSONAL PROTECTIVE EQUIPMENT**

**GLOVES** Not needed under normal conditions of use.

**EYE** Use protective goggles in high dust conditions.

**FOOTWEAR** As required on jobsite.

**CLOTHING** Wear coveralls in high dust conditions.

**RESPIRATOR** Avoid breathing dust. See instructions below

Bureau of Mines approved respirators for protection against pneumoconiosis producing dusts recommended when dust is present. If the dust concentration is less than ten (10) times the Permissible Exposure Limit (PEL) use quarter or half mask respirator (N95) with replacement dust filter or single use dust respirator with valve. If dust concentration is greater than ten (10) times and less than one hundred (100) times the PEL use full faceplate respirator with replaceable dust filter (N95 filter); if greater than one hundred (100) and less than two hundred (200) times the PEL use power air purifying (positive pressure) respirator with replaceable filter (N95 filters); if greater than two hundred (200) times the PEL use type C, automatic-air respirator, continuous flow type (positive pressure), with full facepiece, head or helmet.

**SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES**

|                                   |       |                                     |                           |
|-----------------------------------|-------|-------------------------------------|---------------------------|
| <b>PHYSICAL STATE</b>             | solid | <b>ODOR AND APPEARANCE</b>          | No odor, Buff/grey powder |
| <b>VAPOR PRESSURE (mm Hg)</b>     | N/ap. | <b>DENSITY (20 degrees Celsius)</b> | 35lb/cu. ft. +/- 5        |
| <b>VAPOR DENSITY (Air = 1)</b>    | N/ap. | <b>SOLUBILITY IN WATER</b>          | Insoluble, forms          |
| <b>SPECIFIC GRAVITY (Water=1)</b> | 2.1   |                                     | colloidal suspension      |
| <b>FREEZING POINT</b>             | N/ap. | <b>pH</b>                           | 5.5 - 6.5                 |
| <b>BOILING POINT</b>              | N/ap. | <b>EVAPORATION RATE</b>             | N/ap.                     |

**SECTION X - STABILITY AND REACTIVITY**

|  |                      |   |   |
|--|----------------------|---|---|
| <b>CHEMICAL STABILITY (IF NO, UNDER WHICH CONDITIONS)</b>      | YES                  | X |   |
|  | NO                   |   |   |
| <b>INCOMPATIBILITY WITH OTHER SUBSTANCES (IF YES, SPECIFY)</b> | YES                  | X | <b>Hydrofluoric acid - silica may react violently</b> |
|  | NO                   |   |   |
| <b>REACTIVITY, AND UNDER WHAT CONDITIONS</b>                   | N/ap.                |   |   |
| <b>HAZARDOUS DECOMPOSITION PRODUCTS</b>                        | N/ap.                |   |   |
| <b>CONDITIONS TO AVOID</b>                                     | None in Designed Use |   |   |

**SECTION XI - TOXICOLOGICAL INFORMATION**

|                          |   |
|--------------------------|---|
| <b>PRIMARY ROUTE(S):</b> | May cause temporary irritation or inflammation.                                       |
| <b>Eyes:</b>             |   |
| <b>Skin:</b>             | May cause dryness with continued exposure.  |
| <b>Ingestion:</b>        | Not considered harmful, by mouth, throat, and/or stomach. Minor irritation may occur. |

|  |  |                               |
|--|--|-------------------------------|
| <b>Inhalation:</b>   | Persistent dry cough, throat irritation and labored breathing on exertion are symptomatic of exposure to airborne dust. Exposure may aggravate existing upper respiratory tract diseases such as asthma, bronchitis or emphysema. <b>Acute (short term)</b> exposure to dust levels exceeding the PEL Eyes may cause irritation of respiratory tract resulting in a dry cough. Eyes may develop redness and become itchy. <b>Chronic (long term)</b> exposure to crystalline silica contained by airborne diatomaceous earth, where levels are higher than TLV's, may lead to the development of silicosis, other respiratory problems, or some forms of cancer. From the International Agency for Research on Cancer (IARC), in a 2012 review of SILICA DUST, CRYSTALLINE, IN THE FORM OF QUARTZ OR CRISTOBALITE (monograph 100C) concluded that "Crystalline Silica in the form of quartz or cristobalite dust is <i>carcinogenic to humans</i> (group 1)." The NTP (National Toxicology Program) has determined that "Respirable crystalline silica, primarily quartz dust occurring in industrial and occupational settings, is known to be a human carcinogen." |                               |
| <b>SECTION XII - ECOLOGICAL INFORMATION</b>  |  |                               |
| Product is generally considered chemically inert in the environment. Used product that has become contaminated may have significantly different characteristics than uncontaminated product, and should be re-evaluated accordingly. Dispose of in accordance with Local, State, and Federal regulations.  |  |                               |
| <b>SECTION XIII - DISPOSAL CONSIDERATIONS</b>  |  |                               |
| Uncontaminated waste is not hazardous as defined by the Resource Conservation and Recovery Act (RCRA, 40 CFR261). Contaminated waste must be evaluated based on contamination source. Consult local agencies as needed. Dispose of in accordance with Local, State, and Federal regulations.   |  |                               |
| <b>SECTION XIV - TRANSPORTATION INFORMATION</b>  |  |                               |
| <b>DOT Shipping Name:</b> Not Regulated by DOT   | <b>Canada TDG:</b> Not Regulated by TDG  |                               |
| <b>DOT Hazard Class:</b> n/a   | <b>Hazard Class:</b> n/a   |                               |
| <b>Identification #:</b> n/a   | <b>UN #:</b> n/a   |                               |
| <b>SECTION XV - REGULATORY INFORMATION</b>   |  |                               |
| <b>OSHA:</b> This material is considered hazardous. See section 11.  | <b>WHMIS:</b> Uncontrolled product according to WHMIS classification criteria  |                               |
| <b>EINECS:</b> Not Listed  | <b>CND DSL:</b> This product is listed on the DSL  |                               |
| <b>TSCA:</b> This material is listed in the TSCA inventory and is not otherwise regulated by TSCA sec 4,5,6,7, or 12   | <b>NTP:</b> "Respirable crystalline silica, primarily quartz dust occurring in industrial and occupational settings, is known to be a human carcinogen."   |                               |
| <b>Calif Prop 65:</b> Listed: Crystalline Silica (airborne particles of respirable size)   | <b>RCRA:</b> This material is not defined as hazardous waste   |                               |
| <b>SECTION XVI - OTHER INFORMATION</b>   |  |                               |
| <b>PREPARED BY:</b><br>ZMM Canada Minerals Corp.   | <b>PHONE NUMBER:</b><br>778-479-9091   | <b>DATE:</b><br>March 8, 2018 |
| All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by ZMM Canada Minerals Corp., as to the information, or as to the safety, toxicity or the effect of this product. |  |                               |