Material Safety Data Sheet

1. Product and company identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>VEEGUM® K Granules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier/Manufacturer</td>
<td>Vanderbilt Minerals, LLC</td>
</tr>
<tr>
<td>30 Winfield Street</td>
<td></td>
</tr>
<tr>
<td>Norwalk, CT 06855</td>
<td></td>
</tr>
<tr>
<td>Synonym</td>
<td>Smectite clay, Bentonite, CAS No. 1302-78-9</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Magnesium Aluminum Silicate</td>
</tr>
<tr>
<td>Material uses</td>
<td>USP/NF Magnesium Aluminum Silicate - Type IIA</td>
</tr>
<tr>
<td>INCI Name</td>
<td>Magnesium Aluminum Silicate</td>
</tr>
</tbody>
</table>

2. Hazards identification

**Emergency overview**
WARNING! Cancer Hazard. Contains quartz which can cause cancer. Typically contains less than 1% quartz. Risk of cancer depends upon duration and level of exposure. Not considered an acute hazard. May cause mechanical eye and skin irritation. Prolonged inhalation may cause lung injury. Physical form is unlikely to present dust risk under normal conditions of use.

**In case of emergency**
1-203-295-2140
Chemtrec: 1-800-424-9300
Outside US: +1-703-527-3887

**Routes of entry**
- Ingestion, Inhalation

**Potential acute health effects**

**Inhalation**
- Inhalation of high concentrations may cause mechanical irritation and discomfort.
- Repeated exposure may cause chronic effects.

**Ingestion**
- Not an ingestion hazard.

**Skin**
- Possible mechanical skin irritation. Not absorbed through skin. Possible granuloma formation in open wounds (requires repeated, massive applications).

**Eyes**
- May cause mechanical irritation.

**Remarks**
- No additional remark.

**Potential chronic health effects**
- Pulmonary System (chronic risk).

See toxicological information (Section 11)

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS number</th>
<th>% by weight</th>
<th>TLV/PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>smectite clay</td>
<td>12199-37-0</td>
<td>&lt;99</td>
<td>ACGIH TLV (United States).</td>
</tr>
<tr>
<td>quartz</td>
<td>14808-60-7</td>
<td>0.9</td>
<td>TWA: 10 mg/m³ total dust; 3 mg/m³ respirable dust (PNOS)</td>
</tr>
</tbody>
</table>

ACGIH TLV (United States).

4. First aid measures

**Eye contact**
Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

**Skin contact**
Wash off with water.

**Inhalation**
Allow the victim to rest in a well ventilated area if high concentration is inhaled and mechanical irritation or discomfort occurs. Seek medical attention if irritation persists.

**Ingestion**
Unlikely to be toxic by ingestion.
5. Fire-fighting measures

- Flammability of the product: Non-flammable.
- Flash point: Not applicable.
- Auto-ignition temperature: Not applicable.
- Flammable limits: Not applicable.
- Hazardous combustion products: Not applicable.
- Fire hazards in the presence of various substances: Not considered to be flammable. Product will not burn, use appropriate extinguishing media for surrounding fires.

6. Accidental release measures

- Small spill: Use a vacuum to clean up spillage. If appropriate, use gentle water spray to wet down and minimize dust generation. Place in a sealed container. Material will become slippery when wet.
- Large spill: Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminant surface and dispose of according to local and regional authority requirements. Avoid excessive dust generation. Use respiratory protection in high dust condition.

7. Handling and storage

Handling and storage: Avoid generating dust. Use respiratory protection in the absence of adequate engineering controls. Keep containers closed when not in use. Clean up spills promptly (see spill procedure). No special storage considerations. Handle in ways which minimize dust generation.

8. Exposure controls/personal protection

- Engineering measures: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below established levels below recommended exposure limits. If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Under controlled laboratory test conditions the granular particulate form of this product was found to produce a 3 fold reduction in airborne respirable dust (<10 microns) when compared to flake particulate forms of the same product. Use in an industrial setting is likely to yield similar aerosol dust suppression. As per sound industrial hygiene practice, however, dust levels should be determined by direct dust monitoring at the work site to address variations in material handling and dust control practices.

If local exhaust ventilation is used, a capture velocity of 150-200 fpm is recommended.

- Personal protection: Splash goggles. Dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. No special skin protection should be required. However, if irritation is experienced, use gloves and/or other skin covering.

9. Physical and chemical properties

- Physical state: Solid. [Granules]
- Color: Off-white to tan.
- Odor: None known.
- Molecular weight: Not applicable.
- PH: Not available.
- Boiling/condensation point: Not available.
- Melting/freezing point: Not available.
9. Physical and chemical properties

- **Specific gravity**: 2.6
- **Vapor pressure**: Not available.
- **Vapor density**: Not available.
- **Volutility**: Not available.
- **Evaporation rate**: Not available.
- **Dispersibility properties**: Not available.
- **Solubility**: Insoluble in the following materials: cold water.

10. Stability and reactivity

- **Stability**: The product is stable.
- **Instability temperature**: Not applicable.
- **Conditions of instability**: Not available.
- **Incompatibility with various substances**: No incompatible product according to our database.
- **Corrosivity**: Not available.

11. Toxicological information

**Acute effects**

- See Hazards Identification (section 2)

**Chronic effects**

- **Carcinogenic effects**: See summary below.
- **Mutagenic effects**: None known.
- **Teratogenic effects**: None known.
- **Developmental toxicity**: None known.

**Conclusion/Summary**: Excessive exposure to any dust may aggravate pre-existing respiratory conditions.

**Classification**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>EPA</th>
<th>NIOSH</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>quartz</td>
<td>A2</td>
<td>1</td>
<td>-</td>
<td>+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Ecological information

- **Ecotoxicity**: None known.
- **Products of biodegradation**: None known.
- **Toxicity of the products of biodegradation**: None known.
- **Special remarks on the products of biodegradation**: Not available.
13. Disposal considerations

Waste information
Not a US RCRA hazardous waste. Dispose of in accordance with state and local regulations.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. Transport information

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>UN number</th>
<th>Proper shipping name</th>
<th>Classes</th>
<th>PG*</th>
<th>Label</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>Not regulated. -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TDG Classification</td>
<td>Not regulated. -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>ADR/RID Class</td>
<td>Not regulated. -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>IMDG Class</td>
<td>Not regulated. -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>IATA-DGR Class</td>
<td>Not regulated. -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

PG* : Packing group

15. Regulatory information

Canada
WHMIS (Canada) Class D-2A: Material causing other toxic effects (Very toxic).
Canada inventory All components are listed or exempted.
WHMIS (Canada) (Pictograms)

International regulations
International lists
Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Europe inventory: All components are listed or exempted.
Canada inventory: All components are listed or exempted.

United States
OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
U.S. Federal regulations United States inventory (TSCA 8b): All components are listed or exempted.

16. Other information

Other special considerations Quartz (none detected to less than 1.0% - this quartz range is "typical" and may change slightly with different lots and grades)

Hazardous Material Information System (U.S.A.)
National Fire Protection Association (U.S.A.)

1/18/2013.
The customer is responsible for determining the PPE code for this material.

Date of printing 1/18/2013.
Date of issue 1/1/2013.
Date of previous issue No previous validation.
Information contact Corporate Risk Management
1-203-295-2143

Visit www.vanderbiltminerals.com for more information.

Notice to reader
Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us.