SECTION 1: Identification

1.1. Product identifier
3M Brand Roofing Granules - 4100P & 4600P (Pittsboro, NC)

Product Identification Numbers
98-0213-4025-6, 98-0213-4026-4
7010297703, 7010402648

1.2. Recommended use and restrictions on use

Recommended use
Granules for coating roofing shingles.

1.3. Supplier’s details
MANUFACTURER: 3M
DIVISION: Industrial Mineral Products
ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA
Telephone: 1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Carcinogenicity: Category 1A.
Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements
Signal word
Danger

Symbols
Health Hazard |

Pictograms
Hazard Statements
May cause cancer.

Causes damage to organs through prolonged or repeated exposure:
- respiratory system

Precautionary Statements

Prevention:
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Do not eat, drink or smoke when using this product.
- Wash thoroughly after handling.

Response:
- IF exposed or concerned: Get medical advice/attention.

Storage:
- Store locked up.

Disposal:
- Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

85% of the mixture consists of ingredients of unknown acute oral toxicity.

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta-Andesite</td>
<td>Mixture</td>
<td>80 - 95</td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>14808-60-7</td>
<td>5 - 15</td>
</tr>
<tr>
<td>Ceramic</td>
<td>66402-68-4</td>
<td>1 - 3</td>
</tr>
<tr>
<td>Oil</td>
<td>64742-52-5</td>
<td>&lt; 0.2</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>&lt; 0.2</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
- Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
- Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:
- Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.
If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

**SECTION 5: Fire-fighting measures**

5.1. Suitable extinguishing media
Non-combustible. Use a fire fighting agent suitable for surrounding fire.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

5.3. Special protective actions for fire-fighters
No special protective actions for fire-fighters are anticipated.

**SECTION 6: Accidental release measures**

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Use wet sweeping compound or water to avoid dusting. Sweep up. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

**SECTION 7: Handling and storage**

7.1. Precautions for safe handling
Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use personal protective equipment (gloves, respirators, etc.) as required. Granules are not respirable. Dust generated during handling may contain respirable material. 3M does not recommend material handling methods that could damage the coating or base mineral. In particular, roofing granules should not be conveyed pneumatically, via screw conveyors, or used as a sand blasting media. These uses can cause coating and base mineral attrition which may lead to increased levels of dust generation. For industrial/occupational use only. Not for consumer sale or use.

7.2. Conditions for safe storage including any incompatibilities
No special storage requirements.

**SECTION 8: Exposure controls/personal protection**

8.1. Control parameters
**Occupational exposure limits**

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Agency</th>
<th>Limit type</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>ACGIH</td>
<td>TWA:10 mg/m3</td>
<td>A4: Not class. as human carcin</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>OSHA</td>
<td>TWA(as total dust):15 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>14808-60-7</td>
<td>ACGIH</td>
<td>TWA(respirable fraction):0.025 mg/m3</td>
<td>A2: Suspected human carcin.</td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>14808-60-7</td>
<td>OSHA</td>
<td>TWA Table Z-1(respirable):0.05 mg/m3, TWA Table Z-3(respirable):0.1 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Paraffin oil</td>
<td>64742-52-5</td>
<td>OSHA</td>
<td>TWA(as mist):5 mg/m3</td>
<td></td>
</tr>
<tr>
<td>PETROLEUM DISTILLATES</td>
<td>64742-52-5</td>
<td>OSHA</td>
<td>TWA:2000 mg/m3(500 ppm)</td>
<td></td>
</tr>
</tbody>
</table>

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

**8.2. Exposure controls**

**8.2.1. Engineering controls**

Provide local exhaust ventilation at transfer points. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

**8.2.2. Personal protective equipment (PPE)**

**Eye/face protection**

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

**Skin/hand protection**

No chemical protective gloves are required.

**Respiratory protection**

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

Half facepiece or full facepiece air-purifying respirator suitable for particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

**General Physical Form:** Solid
Specific Physical Form: Granules
Odor, Color, Grade: Brown colors, slightly oily odor, typical particle size 0.84-2.0 mm
Odor threshold Not Applicable
pH Not Applicable [Details: CONDITIONS: SL BASIC] Not Applicable
Melting point Not Applicable
Boiling Point Not Applicable
Flash Point No flash point
Evaporation rate Not Applicable
Flammability (solid, gas) Not Classifed
Flammable Limits(LEL) Not Applicable
Flammable Limits(UEL) Not Applicable
Vapor Pressure Not Applicable
Vapor Density Not Applicable
Specific Gravity 2.75 - 2.90 [Ref Std: WATER=1]
Solubility In Water Not Applicable
Solubility- non-water Not Applicable
Partition coefficient: n-octanol/ water Not Applicable
Autoignition temperature Not Applicable
Decomposition temperature Not Applicable
Viscosity Not Applicable
Percent volatile Nil

SECTION 10: Stability and reactivity

10.1. Reactivity
This material is considered to be non reactive under normal use conditions.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>None known.</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects
Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

**Inhalation:**
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

**Skin Contact:**
Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

**Eye Contact:**
Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

**Ingestion:**
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

**Additional Health Effects:**

Prolonged or repeated exposure may cause target organ effects:
Silicosis: Signs/symptoms may include breathlessness, weakness, chest pain, persistent cough, increased amounts of sputum, and heart disease.

**Carcinogenicity:**
Contains a chemical or chemicals which can cause cancer.

### Ingredient List

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>Class Description</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILICA, Crys AIRRESP</td>
<td>14808-60-7</td>
<td>Known human carcinogen</td>
<td>National Toxicology Program Carcinogens</td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>14808-60-7</td>
<td>Grp. 1: Carcinogenic to humans</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>Grp. 2B: Possible human carc.</td>
<td>International Agency for Research on Cancer</td>
</tr>
</tbody>
</table>

**Toxicological Data**

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

### Acute Toxicity

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall product</td>
<td>Ingestion</td>
<td>No data available; calculated ATE &gt;5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>Dermal</td>
<td>LD50 estimated to be &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>Ingestion</td>
<td>LD50 estimated to be &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Ceramic</td>
<td>Dermal</td>
<td>LD50 estimated to be &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Ceramic</td>
<td>Ingestion</td>
<td>LD50 estimated to be 2,000 - 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Dermal</td>
<td>Rabbit</td>
<td>LD50 &gt; 10,000 mg/kg</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Inhalation-Dust/Mist (4 hours)</td>
<td>Rat</td>
<td>LC50 &gt; 6.82 mg/l</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Ingestion</td>
<td>Rat</td>
<td>LD50 &gt; 10,000 mg/kg</td>
</tr>
<tr>
<td>Oil</td>
<td>Dermal</td>
<td>Rabbit</td>
<td>LD50 &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>Oil</td>
<td>Ingestion</td>
<td>Rat</td>
<td>LD50 &gt; 5,000 mg/kg</td>
</tr>
</tbody>
</table>

ATE = acute toxicity estimate

### Skin Corrosion/Irritation

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
</table>
Quartz (a component of Andesite) | Professional judgment | No significant irritation
--- | --- | ---
Ceramic | Rabbit | No significant irritation
Titanium Dioxide | Rabbit | No significant irritation
Oil | Rabbit | Minimal irritation

### Serious Eye Damage/Irritation

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic</td>
<td>Rabbit</td>
<td>Mild irritant</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Rabbit</td>
<td>No significant irritation</td>
</tr>
<tr>
<td>Oil</td>
<td>Rabbit</td>
<td>Mild irritant</td>
</tr>
</tbody>
</table>

### Skin Sensitization

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic</td>
<td>Human and animal</td>
<td>Not classified</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td></td>
<td>Not classified</td>
</tr>
<tr>
<td>Oil</td>
<td>Guinea pig</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

### Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

### Germ Cell Mutagenicity

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>In Vitro</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>In vivo</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Ceramic</td>
<td>In Vitro</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>In Vitro</td>
<td>Not mutagenic</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>In Vivo</td>
<td>Not mutagenic</td>
</tr>
</tbody>
</table>

### Carcinogenicity

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>Inhalation</td>
<td>Human and animal</td>
<td>Carcinogenic</td>
</tr>
<tr>
<td>Ceramic</td>
<td>Inhalation</td>
<td>Multiple animal species</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Ingestion</td>
<td>Multiple animal species</td>
<td>Not carcinogenic</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Inhalation</td>
<td>Rat</td>
<td>Carcinogenic</td>
</tr>
<tr>
<td>Oil</td>
<td>Ingestion</td>
<td>Rat</td>
<td>Not carcinogenic</td>
</tr>
<tr>
<td>Oil</td>
<td>Dermal</td>
<td>Mouse</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
</tbody>
</table>

### Reproductive Toxicity

#### Reproductive and/or Developmental Effects

For the component/components, either no data are currently available or the data are not sufficient for classification.

### Target Organ(s)

#### Specific Target Organ Toxicity - single exposure
**3M Brand Roofing Granules - 4100P & 4600P  (Pittsboro, NC)  10/22/18**

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Target Organ(s)</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>Inhalation</td>
<td>respiratory irritation</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
<td>NOAEL Not available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specific Target Organ Toxicity - repeated exposure**

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Target Organ(s)</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz (a component of Andesite)</td>
<td>Inhalation</td>
<td>silicosis</td>
<td>Causes damage to organs through prolonged or repeated exposure</td>
<td>Human</td>
<td>NOAEL Not available</td>
<td>occupational exposure</td>
</tr>
<tr>
<td>Ceramic</td>
<td>Inhalation</td>
<td>pulmonary fibrosis</td>
<td>Not classified</td>
<td>Multiple animal species</td>
<td>NOAEL not available</td>
<td></td>
</tr>
<tr>
<td>Ceramic</td>
<td>Inhalation</td>
<td>respiratory system</td>
<td>Not classified</td>
<td>Human</td>
<td>NOAEL not available</td>
<td>occupational exposure</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Inhalation</td>
<td>respiratory system</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
<td>Rat</td>
<td>LOAEL 0.01 mg/l</td>
<td>2 years</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Inhalation</td>
<td>pulmonary fibrosis</td>
<td>Not classified</td>
<td>Human</td>
<td>NOAEL Not available</td>
<td>occupational exposure</td>
</tr>
</tbody>
</table>

**Aspiration Hazard**

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

**SECTION 12: Ecological information**

**Ecotoxicological information**

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

**Chemical fate information**

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

**SECTION 13: Disposal considerations**

13.1. Disposal methods

Dispose of contents/container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility.

**EPA Hazardous Waste Number (RCRA):** Not regulated

**SECTION 14: Transport Information**

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

**SECTION 15: Regulatory information**

15.1. US Federal Regulations

Contact 3M for more information.
EPCRA 311/312 Hazard Classifications:

**Physical Hazards**
Not applicable

**Health Hazards**
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

15.2. State Regulations
Contact 3M for more information.

**California Proposition 65**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILICA, CRYSTALLINE (AIRBORNE PARTICLES OF RESPIRABLE SIZE)</td>
<td>None</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>CARBON BLACK (AIRBORNE, UNBOUND PARTICLES OF RESPIRABLE SIZE [&lt;= 10 MICROMETERS])</td>
<td>1333-86-4</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>TITANIUM DIOXIDE (AIRBORNE, UNBOUND PARTICLES OF RESPIRABLE SIZE)</td>
<td>13463-67-7</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

15.3. Chemical Inventories
The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

15.4. International Regulations
Contact 3M for more information.

**This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.**

SECTION 16: Other information

**NFPA Hazard Classification**
Health: 1  Flammability: 0  Instability: 0  Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.
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