1. Identification

Product identifier
Arizona Test Dust (ATD)

Further trade names

Substance name: Arizona desert sand

Recommended use of the chemical and restrictions on use

Use of the substance/mixture
Used to test various filters and mechanical parts

Details of the supplier of the safety data sheet

Company name: Powder Technology Inc.
Street: 1300 Grey Fox Road
Place: USA-55112 Arden Hills, MN
Telephone: +1 952 894 -8737
e-mail: sales@powdertechnologyinc.com
Internet: http://www.powdertechnologyinc.com

Emergency phone number: +1 952 894 -8737

2. Hazard(s) identification

Classification of the chemical
29 CFR Part 1910.1200
Carcinogenicity: Carc. 2
Specific target organ toxicity single exposure: STOT SE 3 (respiratory tract irritation)
Specific target organ toxicity repeated or prolonged exposure: STOT RE 1

Label elements
29 CFR Part 1910.1200
Signal word: Danger

Pictograms:

Hazard statements
Suspected of causing cancer
May cause respiratory irritation
Causes damage to organs through prolonged or repeated exposure

Precautionary statements
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.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If exposed or concerned: Get medical advice/attention.
Store locked up.
Safety Data Sheet

According to 29 CFR 1910.1200(g)

Arizona Test Dust (ATD)

Revision date: 25.05.2020

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3. Composition/information on ingredients

Substances

Chemical characterization
- Powder-Sand
  - Mineral bound:
    - Aluminium oxide: Alumina 8 - 14%
    - Potassium oxide (mineral) 2 - 5%
    - Sodium oxide (mineral) 1 - 4%
    - Iron (III) oxide (hematite) 4 - 7%
    - Magnesium oxide 1 - 2%

Sensitivies not otherwise classified
- Extended inhalation at levels above the workplace limit value can cause irreversible damage to the lungs (silicosis).

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Components</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>14808-60-7</td>
<td>Silica</td>
<td>69 - 77 %</td>
</tr>
<tr>
<td>1305-78-8</td>
<td>calcium oxide (mineral)</td>
<td>2.5 - 5.5 %</td>
</tr>
<tr>
<td>13463-67-7</td>
<td>titanium dioxide</td>
<td>0 - 1 %</td>
</tr>
</tbody>
</table>

4. First-aid measures

Description of first aid measures

General information
- In all cases of doubt, or when symptoms persist, seek medical advice.

After inhalation
- Provide fresh air. In case of irregular breathing or respiratory arrest provide artificial respiration. If experiencing respiratory symptoms: Call a doctor.

After contact with skin
- Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.

After contact with eyes
- Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. In case of eye irritation consult an ophthalmologist.

After ingestion
- Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps. Call a physician immediately.

Most important symptoms and effects, both acute and delayed
- Suspected of causing cancer if inhaled. A repeated, excessive dust exposure can cause pneumoconiosis. Irritating to eyes.
5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.
Suitable extinguishing media: Foam. Dry extinguishing powder. Atomized water. Carbon dioxide (CO2)

**Unsuitable extinguishing media**

High power water jet.

**Specific hazards arising from the chemical**

Non-flammable.
In case of fire: Metal oxide smoke, toxic.

**Special protective equipment and precautions for fire-fighters**

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

**Additional information**

Knock down dust with water spray jet. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety.

**Environmental precautions**

No special environmental measures are necessary.

**Methods and material for containment and cleaning up**

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal. Ventilate affected area. Collect in closed containers for disposal.

**Reference to other sections**

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

7. Handling and storage

**Precautions for safe handling**

**Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation. Do not breathe dust. Wear personal protection equipment. Avoid contact with skin, eyes and clothes. Avoid: Generation/formation of dust

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.

**Hints on joint storage**


**Further information on storage conditions**

Protect from moisture. Keep away from heat.
8. Exposure controls/personal protection

Control parameters

Exposure limits

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>l/cc</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1305-78-8</td>
<td>Calcium oxide</td>
<td>-</td>
<td>5</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>TWA (8 h)</td>
<td>REL</td>
</tr>
<tr>
<td>1309-37-1</td>
<td>Iron oxide (Fe2O3) (respirable fraction)</td>
<td>-</td>
<td>5</td>
<td></td>
<td>TWA (8 h)</td>
<td>ACGIH-2019</td>
</tr>
<tr>
<td>1309-37-1</td>
<td>Iron oxide dust and fume (as Fe)</td>
<td>-</td>
<td>5</td>
<td></td>
<td>TWA (8 h)</td>
<td>REL</td>
</tr>
<tr>
<td>1309-37-1</td>
<td>Iron oxide fume</td>
<td>-</td>
<td>10</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td>1309-48-4</td>
<td>Magnesium oxide (inhalable fraction)</td>
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<td>10</td>
<td></td>
<td>TWA (8 h)</td>
<td>ACGIH-2019</td>
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<tr>
<td>1309-48-4</td>
<td>Magnesium oxide fume Total Particulate</td>
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<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td>14808-60-7</td>
<td>Silica, crystalline (as respirable dust)</td>
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<td>0.05</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td>14808-60-7</td>
<td>Silica, crystalline - alpha-quartz (respirable</td>
<td>-</td>
<td>0.025</td>
<td></td>
<td>TWA (8 h)</td>
<td>ACGIH-2019</td>
</tr>
<tr>
<td></td>
<td>fraction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14808-60-7</td>
<td>Silica, crystalline quartz, respirable dust (Z-3)</td>
<td>(Z-3)</td>
<td>(Z-3)</td>
<td>TWA (8 h)</td>
<td>PEL</td>
<td></td>
</tr>
<tr>
<td>14808-60-7</td>
<td>Silica, crystalline quartz, total dust (Z-3)</td>
<td>-</td>
<td>(Z-3)</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td>13463-67-7</td>
<td>Titanium dioxide Total dust</td>
<td>-</td>
<td>15</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td>13463-67-7</td>
<td>Titanium dioxide Total dust</td>
<td>-</td>
<td>10</td>
<td></td>
<td>TWA (8 h)</td>
<td>ACGIH-2019</td>
</tr>
<tr>
<td>1344-28-1</td>
<td>alpha-Alumina Respirable fraction</td>
<td>-</td>
<td>5</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
<tr>
<td>1344-28-1</td>
<td>alpha-Alumina Total dust</td>
<td>-</td>
<td>15</td>
<td></td>
<td>TWA (8 h)</td>
<td>PEL</td>
</tr>
</tbody>
</table>

Exposure controls

Appropriate engineering controls
- If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

Protective and hygiene measures
- Do not breathe dust. Avoid dust formation. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Avoid contact with skin, eyes and clothes.

Eye/face protection
- Wear eye protection/face protection.

Hand protection
- Wear suitable protective clothing.

Skin protection
- Wear suitable protective clothing.

Respiratory protection
- In case of inadequate ventilation wear respiratory protection. Respiratory protection necessary at:
  - Generation/formation of dust.
Suitable respiratory protective equipment: particulates filter device (DIN EN 143). Filtering device (full mask or mouthpiece) with filter: FFP2 / N95; HEPA

**Environmental exposure controls**
No special environmental measures are necessary.

9. Physical and chemical properties

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Color</td>
<td>brown - red brown</td>
</tr>
<tr>
<td>Odor</td>
<td>odourless</td>
</tr>
<tr>
<td>pH-Value</td>
<td>not determined</td>
</tr>
</tbody>
</table>

**Changes in the physical state**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point</td>
<td>not determined</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>not determined</td>
</tr>
<tr>
<td>Flash point</td>
<td>not determined</td>
</tr>
</tbody>
</table>

**Flammability**

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>not applicable</td>
</tr>
<tr>
<td>Gas</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

**Explosive properties**

The product is not: Explosive.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower explosion limits</td>
<td>not determined</td>
</tr>
<tr>
<td>Upper explosion limits</td>
<td>not determined</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>not determined</td>
</tr>
</tbody>
</table>

**Auto-ignition temperature**

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>not applicable</td>
</tr>
<tr>
<td>Gas</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

**Decomposition temperature**: not applicable

**Oxidizing properties**

Not oxidising.

**Vapor pressure**: (at 20 °C)

<table>
<thead>
<tr>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>not determined</td>
</tr>
</tbody>
</table>

**Density**: 2,5 - 2,7 g/cm³

**Water solubility**: not soluble

**Solubility in other solvents**

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>not determined</td>
<td></td>
</tr>
</tbody>
</table>

**Partition coefficient**: not determined

**Viscosity / dynamic**: not applicable

**Viscosity / kinematic**: not applicable

**Vapor density**: not applicable

**Other information**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid content</td>
<td>100,00 %</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

10. Stability and reactivity
Reactivity
No hazardous reaction when handled and stored according to provisions.

Chemical stability
Stability: Stable
The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions
Hazardous reactions: Will not occur
No known hazardous reactions.

Conditions to avoid
moisture, heat.

Incompatible materials

Hazardous decomposition products
In case of fire: Metal oxide smoke, toxic.

11. Toxicological information

Information on toxicological effects

Route(s) of Entry
Inhalation, oral, Skin contact, Eye contact.

Acute toxicity
Based on available data, the classification criteria are not met.

Irritation and corrosivity
Based on available data, the classification criteria are not met.

Sensitizing effects
Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction
Suspected of causing cancer (titanium dioxide)
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.
Contains: Silica (fine dust).

Specific target organ toxicity (STOT) - single exposure
May cause respiratory irritation

Specific target organ toxicity (STOT) - repeated exposure
Causes damage to organs through prolonged or repeated exposure (Silica (fine dust))
Extended inhalation at levels above the workplace limit value can cause irreversible damage to the lungs (silicosis).
A repeated, excessive dust exposure can cause pneumoconiosis. Inhalation of dust may cause irritation of the respiratory system.

Carcinogenicity (OSHA): Not listed.
Carcinogenicity (IARC): Silica dust, crystalline, in the form of quartz or cristobalite (CAS 14808-60-7) is listed in group 1. Ferric oxide (CAS 1309-37-1) is listed in group 3. Titanium dioxide (CAS 13463-67-7) is listed in group 2B.
Carcinogenicity (NTP): Not listed.

Aspiration hazard
Based on available data, the classification criteria are not met.

Further information
Inhalation of dust may cause irritation of the respiratory system. The following symptoms may occur: Respiratory complaints, Cough.
Extended inhalation at levels above the workplace limit value can cause irreversible damage to the lungs (silicosis).

Symptoms: Respiratory complaints, Fever, Cough. acute Symptoms: Fatal if inhaled.

Skin contact: slight irritant but not relevant for classification.
After eye contact: slight irritant but not relevant for classification.
After ingestion: Gastrointestinal complaints, Nausea, Vomiting.

12. Ecological information

Ecotoxicity
The product is not: Ecotoxic.

Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential
The product has not been tested.

Mobility in soil
The product has not been tested.

Other adverse effects
No information available.

13. Disposal considerations

Waste treatment methods

Disposal recommendations
Dispose of waste according to applicable legislation.

Contaminated packaging
Dispose of waste according to applicable legislation.

14. Transport information

US DOT 49 CFR 172.101

Proper shipping name: Not a hazardous material with respect to these transport regulations.

Marine transport (IMDG)

UN number: No dangerous good in sense of this transport regulation.

UN proper shipping name: No dangerous good in sense of this transport regulation.

Transport hazard class(es): No dangerous good in sense of this transport regulation.

Packing group: No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

UN number: No dangerous good in sense of this transport regulation.

UN proper shipping name: No dangerous good in sense of this transport regulation.

Transport hazard class(es): No dangerous good in sense of this transport regulation.

Packing group: No dangerous good in sense of this transport regulation.

Environmental hazards
ENVIRONMENTALLY HAZARDOUS: no

Special precautions for user
No information available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
not applicable
15. Regulatory information

U.S. Regulations

National Inventory TSCA
- CAS No. 14808-60-7: Yes.
- CAS No. 13463-67-7: Yes.
- CAS No. 1305-78-8: Yes.
- CAS No. 1344-28-1: Yes.
- CAS No. 12136-45-7: Yes.
- CAS No. 1313-59-3: Yes.
- CAS No. 1309-37-1: Yes.
- CAS No. 1309-48-4: Yes.

National regulatory information
- SARA Section 311/312 Hazards:
  - Silica (fine dust) (14808-60-7): Delayed (chronic) health hazard
  - Calcium oxide (mineral) (1305-78-8): Immediate (acute) health hazard
  - Titanium dioxide (13463-67-7): Delayed (chronic) health hazard
- SARA Section 313 Toxic release inventory:
  - Aluminum oxide (fibrous forms) (1344-28-1): De minimis limit = 1.0 %, Reportable threshold = Standard

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)
This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other information

Changes
- Revision date: 25.05.2020
- Revision No: 1,01

This data sheet contains changes from the previous version in section(s): 1,2,3,8,9,11,15,16.

Abbreviations and acronyms
- ACGIH: American Conference of Governmental Industrial Hygienists
- CFR: Code of Federal Regulations
- DOT: Department of Transportation
- ICAO: International Civil Aviation Organization
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- IARC: International Agency for Research on Cancer
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- CAS: Chemical Abstracts Service
- NFPA: National Fire Protection Association
- NTP: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: permissible exposure limit
- REL: recommended exposure limit
- SARA: Superfund Amendments and Reauthorization Act
- STEL: Short-term exposure limit
- TSCA: Toxic Substances Control Act
- TWA: time-weighted average
- TI: Technical Instructions
- DGR: Dangerous Goods Regulations
- UN: United Nations
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
VOC: Volatile Organic Compounds

Other data
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.