SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Product identifiers

Product Name: ACS Material Titanium Silicalite-1 Molecular Sieve
Brand: ACS Material LLC
CAS-No.: 12173-28-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacturing of substances

1.3 Details of the supplier of the safety data sheet

Company: ACS MATERIAL LLC
959 E Walnut Street, Suite 100
Pasadena, CA 91106
USA
Telephone: +1 (866)-227-0656
Fax: +1 (781)-518-0284

1.4 Emergency telephone number

Emergency Phone #: +1 (866)-227-0656

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Specific target organ toxicity - repeated exposure (Category 1), H372
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H372: Causes damage to organs through prolonged or repeated exposure.

Precautionary statement(s)
P260: Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264: Wash skin thoroughly after handling.
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms: Silica/Titanium dioxide, SiO₂/TiO₂, Molecular Sieve.
Formula: \((\text{SiO}_2)_{x} \text{(TiO}_2)_{y}\)
CAS-No: 12173-28-3

Hazardous ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>Concentration</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>&gt;99.0%</td>
<td>12173-28-3</td>
</tr>
</tbody>
</table>

For the full text of the phrases mentioned in this Section, see Section 16.

Hazardous impurities: None known.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Silicon oxides.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control Parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>12173-28-3</td>
<td>TWA</td>
<td>6mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>80 mg/m³/% SiO₂</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Impervious clothing recommended. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 1) Appearance | Form: Solid, powder  
Colour: white |
| 2) Odour | No data available |
| 3) Odour Threshold | No data available |
| 4) pH | No data available |
| 5) Melting point/freezing point | No data available |
| 6) Initial boiling point and boiling range | No data available |
| 7) Flash point | No data available |
| 8) Evaporation rate | No data available |
| 9) Flammability (solid, gas) | No data available |
| 10) Upper/lower flammability or explosive limits | No data available |
| 11) Vapour pressure | No data available |
| 12) Vapour density | No data available |
| 13) Relative density | No data available |
| 14) Water solubility | insoluble |
| 15) Partition coefficient: n- octanol/water | No data available |
| 16) Auto-ignition temperature | No data available |
| 17) Decomposition temperature | No data available |
| 18) Viscosity | No data available |
| 19) Explosive properties | No data available |
| 20) Oxidizing properties | No data available |

**9.2 Other safety information**
No data available

**SECTION 10: STABILITY AND REACTIVITY**

**10.1 Reactivity**
No data available

**10.2 Chemical stability**
Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**
No data available

**10.4 Conditions to avoid**
Avoid moisture. Slight reactive with moisture.

**10.5 Incompatible materials**
Strong oxidizing agents and acids

**10.6 Hazardous decomposition products**
Other decomposition products - No data available
SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Acute toxicity**
LD50 Oral - Rat – 3, 160 mg/kg
LD50 Dermal - No data available

**Skin corrosion/irritation**
No data available

**Serious eye damage/eye irritation**
No data available

**Respiratory or skin sensitisation**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Silicon dioxide)
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

**Additional Information**
RTECS: VV7310000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
See section 11.
12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard
SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H372 Causes damage to organs through prolonged or repeated exposure.
STOT SE Specific target organ toxicity - single exposure

HMIS Rating
Health hazard: 1

Chronic Health Hazard: *
Flammability: 0
Physical Hazard: 0

NFPA Rating
Health hazard: 0
Fire Hazard: 0
Reactivity Hazard: 1

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