1. Product and Company Identification

Material name: ‘SAIRSET
Version #: 04
Issue date: 05-30-2012
Revision date: 09-08-2014
Supersedes date: 09-08-2014
Brand Code: 5006
Product use: For Industrial Use Only
Manufacturer information:
ANH Refractories Company
400 Fairway Drive
Moon Township, Pennsylvania 15108
United States
www.anhrefractories.com
General Phone: 412-375-6600
CHEMTREC 24 HOUR EMERGENCY #: 1-800-424-9300

2. Hazards Identification

Emergency overview
CAUTION
Harmful in contact with eyes. Cancer hazard. Prolonged exposure may cause chronic effects.

OSHA regulatory status
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects
Inhalation. Ingestion. Eye contact.

Routes of exposure
Eyes
Eye contact may result in corneal injury. Contact may irritate or burn eyes. Do not get this material in contact with eyes.

Skin
Avoid contact with the skin.

Inhalation
May cause cancer by inhalation. Repeated or prolonged inhalation may cause toxic effects. Avoid breathing dust/fume/gas/mist/vapors/spray. For additional information on inhalation hazards, see Section 11 of this safety data sheet.

Ingestion
Components of the product may be absorbed into the body by ingestion. Do not ingest.

Target organs
Eyes. Stomach.

Chronic effects
Conjunctiva. This product has the potential for generation of respirable dust during handling and use. Dust may contain respirable crystalline silica. Overexposure to dust may result in pneumoconiosis, a respiratory disease caused by inhalation of mineral dust, which can lead to fibrotic changes to the lung tissue, or silicosis, a respiratory disease caused by inhalation of silica dust, which can lead to inflammation and fibrosis of the lung tissue. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled.

Signs and symptoms
Corneal damage. Conjunctivitis.

Potential environmental effects
May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mullite</td>
<td>1302-93-8</td>
<td>40 - 60</td>
</tr>
<tr>
<td>Cristobalite</td>
<td>14464-46-1</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Quartz (SiO2)</td>
<td>14808-60-7</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Kaolin</td>
<td>1332-58-7</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Silicic Acid, Sodium Salt</td>
<td>1344-09-8</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>0.1 - 1</td>
</tr>
</tbody>
</table>
Non-hazardous components | CAS # | Percent
--- | --- | ---
Aluminium Oxide (Non-Fibrous) | 1344-28-1 | 0 - 0.1
Other components below reportable levels | 2.5 - 10

4. First Aid Measures

First aid procedures

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Skin contact: Remove and isolate contaminated clothing and shoes. Wash off with warm water and soap. Get medical attention if symptoms occur. For minor skin contact, avoid spreading material on unaffected skin.

Inhalation: Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention if symptoms occur.

Ingestion: Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If ingestion of a large amount does occur, call a poison control center immediately.

Notes to physician: In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General advice: In case of shortness of breath, give oxygen. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Keep victim under observation. Keep victim warm.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Fire fighting equipment/instructions: Not available.

6. Accidental Release Measures

Personal precautions: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.

Environmental precautions: Do not contaminate water.

Methods for containment: Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up: Should not be released into the environment. Following product recovery, flush area with water. For waste disposal, see section 13 of the MSDS.

7. Handling and Storage

Handling: Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not get this material in contact with eyes. Avoid contact with skin. Avoid prolonged exposure. Wear personal protective equipment. Handle and open container with care. Avoid release to the environment.

Storage: Keep container tightly closed. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS). Use care in handling/storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cristobalite (CAS 14464-46-1)</td>
<td>TWA</td>
<td>0.025 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Kaolin (CAS 1332-58-7)</td>
<td>TWA</td>
<td>2 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Mullite (CAS 1302-93-8)</td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>
US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Titanium Dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaolin (CAS 1332-58-7)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Titanium Dioxide (CAS 13463-67-7)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

US. OSHA Table Z-3 (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cristobalite (CAS 14464-46-1)</td>
<td>TWA</td>
<td>0.15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.05 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 millions of particles</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 millions of particles</td>
<td>Respirable.</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Exposure guidelines
Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Engineering controls
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment
Eye / face protection
Wear safety glasses with side shields (or goggles). Do not get in eyes. Eye wash fountain is recommended.

Skin protection
Wear protective gloves.

Respiratory protection
Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

General hygiene considerations
Do not get in eyes. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance
Not available.

Physical state
Solid.

Form
Solid.

Color
Not available.

Odor
Not available.

Odor threshold
Not available.

pH
Not available.

Vapor pressure
Not available.

Vapor density
Not available.

Boiling point
Not available.

Melting point/Freezing point
Not available.

Solubility (water)
Not available.
Specific gravity Not available.
Relative density Not available.
Flash point Not available.
Flammability limits in air, upper, % by volume Not available.
Flammability limits in air, lower, % by volume Not available.
Auto-ignition temperature Not available.

10. Chemical Stability & Reactivity Information

Chemical stability Material is stable under normal conditions.
Conditions to avoid Contact with incompatible materials.
Incompatible materials Powerful oxidizers. Chlorine.
Incompatibility is based strictly upon potential theoretical reactions between chemicals and may not be specific to industrial application exposure. Contact your sales representative for clarification.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological Information

Local effects Contact may irritate or burn eyes.
Chronic effects Hazardous by OSHA criteria. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
Carcinogenicity Hazardous by OSHA criteria. In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that “carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.” (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. “There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk…” (SCOEL SUM Doc 94-final, June 2003) Cancer hazard. According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled.

ACGIH Carcinogens
Cristobalite (CAS 14464-46-1) A2 Suspected human carcinogen.
Mullite (CAS 1302-93-8) A4 Not classifiable as a human carcinogen.
Quartz (SiO2) (CAS 14808-60-7) A2 Suspected human carcinogen.
Titanium Dioxide (CAS 13463-67-7) A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity
Cristobalite (CAS 14464-46-1) 1 Carcinogenic to humans.
Quartz (SiO2) (CAS 14808-60-7) 1 Carcinogenic to humans.
Titanium Dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

US NTP Report on Carcinogens: Known carcinogen
Cristobalite (CAS 14464-46-1) Known To Be Human Carcinogen.
Quartz (SiO2) (CAS 14808-60-7) Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

12. Ecological Information

Ecotoxicity Contains a substance which causes risk of hazardous effects to the environment.
Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability Not available.
13. Disposal Considerations

Waste codes
Not applicable.

Disposal instructions
This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

14. Transport Information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA/SARA Hazardous Substances - Not applicable.
All chemical substances in this product are listed on the TSCA chemical substance inventory where required.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA (Superfund) reportable quantity
None

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
No

Inventory status

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

State regulations
WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance
Quartz (SiO2) (CAS 14808-60-7) Listed: October 1, 1988 Carcinogenic.

**US - New Jersey RTK - Substances: Listed substance**
- Cristobalite (CAS 14464-46-1)
- Kaolin (CAS 1332-58-7)
- Quartz (SiO2) (CAS 14808-60-7)
- Titanium Dioxide (CAS 13463-67-7)

**US. Massachusetts RTK - Substance List**
- Cristobalite (CAS 14464-46-1)
- Kaolin (CAS 1332-58-7)
- Quartz (SiO2) (CAS 14808-60-7)
- Titanium Dioxide (CAS 13463-67-7)

**US. Pennsylvania RTK - Hazardous Substances**
- Cristobalite (CAS 14464-46-1)
- Kaolin (CAS 1332-58-7)
- Quartz (SiO2) (CAS 14808-60-7)
- Titanium Dioxide (CAS 13463-67-7)

**US. Rhode Island RTK**
- Not regulated.

**16. Other Information**

**Recommended restrictions**
Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

**HMIS® ratings**
- Health: 1*
- Flammability: 0
- Physical hazard: 0

**NFPA ratings**
- Health: 1
- Flammability: 0
- Instability: 0

**Disclaimer**
This information is based on our present knowledge on creation date. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.