SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture: GREENTHERM 23 LI
Registration number: -
Synonyms: None.
Brand Code: 0205
Issue date: 17-October-2016
Version number: 01

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

Identified uses: For Industrial Use Only
Uses advised against: 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.

1.3. Details of the supplier of the safety data sheet

Supplier:
Company name: HarbisonWalker International
Address: 1305 Cherrington Parkway, Suite 100
Moon Township, PA 15108, USA
Division: United States
Telephone: General Phone: 412-375-6600
CHEMTREC 24 HOUR EMERGENCY #: 1-800-424-9300
INTERNATIONAL #: 1-703-527-3887
E-mail: REACH@thinkHWI.com
Contact person: HWI USA

1.4. Emergency telephone number

Not available.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended
This item is defined as an article per OSHA and REACH and is therefore exempt from labeling. A Safety Data Sheet is available.

Classification according to Regulation (EC) No 1272/2008 as amended
This item is defined as an article per OSHA and REACH and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not Classified as hazardous per CLP Regulations. However, individual customer processes (such as grinding, sawing, or blasting) may result in the formation of dust that may present health hazards. Limit skin contact. Wash hands after handling. Wear protective gloves/protective clothing/eye protection.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended
This item is defined as an article per OSHA and REACH and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not Classified as hazardous per CLP Regulations. However, individual customer processes (such as grinding, sawing, or blasting) may result in the formation of dust that may present health hazards. Limit skin contact. Wash hands after handling. Wear protective gloves/protective clothing/eye protection.

2.3. Other hazards

None known.
SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>%</th>
<th>CAS-No. / EC No.</th>
<th>REACH Registration No.</th>
<th>INDEX No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous silica</td>
<td>50 - &lt; 60</td>
<td>7631-86-9 231-545-4</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>DSD: -</td>
<td>CLP: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium Oxide (Non-Fibrous)</td>
<td>40 - &lt; 50</td>
<td>1344-28-1 215-691-6</td>
<td>01-2119529248-35-0134</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>DSD: -</td>
<td>CLP: -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other components below reportable levels 3 - < 5

List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC.
M: M-factor
vPvB: very persistent and very bioaccumulative substance.
PBT: persistent, bioaccumulative and toxic substance.
#: This substance has been assigned Community workplace exposure limit(s).

SECTION 4: First aid measures

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact
Rinse with water. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed

Direct contact with eyes may cause temporary irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards
Not available.

5.1. Extinguishing media

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

Unsuitable extinguishing media
Not available.

5.2. Special hazards arising from the substance or mixture
Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters
Not available.

Special fire fighting procedures
Not available.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Keep unnecessary personnel away. For personal protection, see section 8.

For emergency responders
Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions
Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up
Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

6.4. Reference to other sections
Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe 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 breathe dust.

7.2. Conditions for safe storage, including any incompatibilities
Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)
Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide</td>
<td>VME</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td>(Non-Fibrous) (CAS 1344-28-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>VME</td>
<td>10 mg/m3</td>
</tr>
</tbody>
</table>

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

Recommended monitoring procedures
Follow standard monitoring procedures.

Derived no-effect level (DNEL)
Not available.

Predicted no effect concentrations (PNECs)
Not available.

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

8.2. Exposure controls

Appropriate 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.

Individual protection measures, such as personal protective equipment

General information
Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
- Hand protection
  Wear appropriate chemical resistant gloves.
- Other
  Wear suitable protective clothing.

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

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.
Hygiene measures
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.

Environmental exposure controls
Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance
- Physical state: Solid.
- Form: Solid.
- Colour: Not available.
- Odour: Not available.
- Odour threshold: Not available.
- pH: Not available.
- Melting point/freezing point: Not available.
- Initial boiling point and boiling range: Not available.
- Flash point: Not available.
- Evaporation rate: Not available.
- Flammability (solid, gas): Not available.

Upper/lower flammability or explosive limits
- Flammability limit - lower (%): Not available.
- Flammability limit - upper (%): Not available.
- Vapour pressure: Not available.
- Vapour density: Not available.
- Relative density: Not available.

Solubility(ies)
- Solubility (water): Not available.
- Solubility (other): Not available.
- Partition coefficient (n-octanol/water): Not available.
- Auto-ignition temperature: Not available.
- Decomposition temperature: Not available.
- Viscosity: Not available.

Explosive properties
- Not available.

Oxidizing properties
- Not available.

9.2. Other information
No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Material is stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid
Contact with incompatible materials.

10.5. Incompatible materials
Strong oxidising agents. Incompatibility is based strictly upon potential theoretical reactions between chemicals and may not be specific to industrial application exposure.

10.6. Hazardous decomposition products
No hazardous decomposition products are known.
SECTION 11: Toxicological information

General information
Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

**Inhalation**
No adverse effects due to inhalation are expected.

**Skin contact**
No adverse effects due to skin contact are expected.

**Eye contact**
Direct contact with eyes may cause temporary irritation.

**Ingestion**
May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms
Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects

**Acute toxicity**
No data available.

**Skin corrosion/irritation**
Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation**
Based on available data, the classification criteria are not met.

**Respiratory sensitisation**
Based on available data, the classification criteria are not met.

**Skin sensitisation**
Based on available data, the classification criteria are not met.

**Germ cell mutagenicity**
Based on available data, the classification criteria are not met.

**Carcinogenicity**
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) 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. Based on available data, the classification criteria are not met.

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

**Specific target organ toxicity - single exposure**
Based on available data, the classification criteria are not met.

**Specific target organ toxicity - repeated exposure**
Based on available data, the classification criteria are not met.

**Aspiration hazard**
Due to partial or complete lack of data the classification is not possible.

**Mixture versus substance information**
No information available.

**Other information**
Not available.

SECTION 12: Ecological information

12.1. Toxicty
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.2. Persistence and degradability
No data is available on the degradability of this product.

12.3. Bioaccumulative potential
No data available.

12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
Not available.

12.6. Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
SECTION 13: Disposal considerations

13.1. Waste treatment methods
Residual waste Not available.
Contaminated packaging Not available.
EU waste code Not available.

SECTION 14: Transport information

ADR Not regulated as dangerous goods.
RID Not regulated as dangerous goods.
ADN Not regulated as dangerous goods.
IATA Not regulated as dangerous goods.
IMDG Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations
- Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I
  Not listed.
- Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II
  Not listed.
  Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1
  Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2
  Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3
  Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V
  Not listed.
- Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry
  Not listed.
- Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
  Not listed.

Authorisations
- Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended
  Not listed.

Restrictions on use
- Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use
  Not regulated.
- Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work
  Not listed.
- Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding
  Not listed.

Other EU regulations
- Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances
  Not listed.
Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work
Not listed.

Directive 94/33/EC on the protection of young people at work
Not listed.

Other regulations
The product is classified and labelled in accordance with EC directives or respective national laws.

National regulations
Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment
No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

References
Not available.

Information on evaluation method leading to the classification of mixture
Not available.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15
None.

Revision information
None.

Training information
Not available.

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.