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

1.1. Product identifier

| Trade name or designation of the mixture | ZIRMUL |
| Registration number | - |
| Synonyms | None. |
| Brand Code | 8542 |
| Issue date | 18-January-2018 |
| 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: None known.

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 EMERGENCY US/CAN ONLY 1-800-424-9300
- e-mail: sds@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.

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.

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>Aluminium Oxide (Non-Fibrous)</td>
<td>20 - 40</td>
<td>1344-28-1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>215-691-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mullite</td>
<td>20 - 40</td>
<td>1302-93-8</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>215-113-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZIRCONIUM SILICATE (Zircon)</td>
<td>20 - 40</td>
<td>14940-68-2</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>239-019-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other components below reportable levels 20 - 40

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 of the SDS.
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
Avoid prolonged exposure. Observe good industrial hygiene practices.

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>UK. EH40 Workplace Exposure Limits (WELs) Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)</td>
<td>TWA</td>
<td>4 mg/m3</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>Amorphous silica (CAS 7631-86-9)</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>Inhalable dust.</td>
</tr>
<tr>
<td>Zirconium dioxide (CAS 1314-23-4)</td>
<td>STEL</td>
<td>2.4 mg/m3</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>ZIRCONIUM SILICATE (Zircon) (CAS 14940-68-2)</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>10 mg/m3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m3</td>
<td></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 levels (DNELs)
Not available.

Predicted no effect concentrations (PNECs)
Not available.

Exposure guidelines
Zirconium silicates (zircon sands) contain trace amounts (106-120 pCi/g) of naturally occurring radioactive uranium and thorium. Overexposure by inhalation to respirable dust containing uranium and thorium may cause lung cancer. Eye contact with the dust may cause eye irritation. Measurements made by Dupont during the use of a similar mineral sand indicated the observance of the 5 mg/m3 OSHA PEL for respirable dust and/or the PEL for quartz ensures the user is below the exposure limits established for uranium and thorium. No LD50 or LC50 can be found for zircon sand.

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

Wear appropriate thermal protective clothing, when necessary.

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 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.
**Oxidising 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**: Prolonged inhalation may be harmful.
- **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**: Due to partial or complete lack of data the classification is not possible.
- **Serious eye damage/eye irritation**: Due to partial or complete lack of data the classification is not possible.
- **Respiratory sensitisation**: Due to partial or complete lack of data the classification is not possible.
- **Skin sensitisation**: Due to partial or complete lack of data the classification is not possible.
- **Germ cell mutagenicity**: Due to partial or complete lack of data the classification is not possible.
- **Carcinogenicity**: Due to partial or complete lack of data the classification is not possible.
- **Reproductive toxicity**: Due to partial or complete lack of data the classification is not possible.
- **Specific target organ toxicity - single exposure**: Due to partial or complete lack of data the classification is not possible.
- **Specific target organ toxicity - repeated exposure**: Due to partial or complete lack of data the classification is not possible.
- **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. Toxicity

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.

- **Partition coefficient n-octanol/water (log Kow)**: Not available.
- **Bioconcentration factor (BCF)**: Not 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.
- **Disposal methods/information**: 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.
SECTION 14: Transport information

ADR
14.1. - 14.6.: Not regulated as dangerous goods.

RID
14.1. - 14.6.: Not regulated as dangerous goods.

ADN
14.1. - 14.6.: Not regulated as dangerous goods.

IATA
14.1. - 14.6.: Not regulated as dangerous goods.

IMDG
14.1. - 14.6.: Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of Marpol 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 (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended
  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.
- Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended
  Not listed.
- Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work
  Not listed.

Other EU regulations
- Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended
  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

List of abbreviations: Not available.

References: Not available.

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

Full text of any H-statements not written out in full under Sections 2 to 15: None.

Composition / Information on Ingredients: After Reaction Composition

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.