Safety data sheet for

Zircon Flour

This generic SDS is provided by LKAB Minerals to give information to assist with material handling of the products listed which are not classified as hazardous under the GHS and / or the CLP regulations.

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

1.1 Product identifier

- Product name: Zircon Flour
- REACH registration number: Exempt
- CAS number: 14940-68-2
- EC number: 239-019-6

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

- Identified uses: Refractory and Foundry material

1.3 Details of the supplier of the safety data sheet

LKAB Minerals Ltd, Flixborough Industrial Estate, Flixborough, North Lincolnshire DN15 8SF UK
sds@lkabminerals.com

1.4 Emergency telephone number of supplier

- LKAB Minerals AB (Sweden) +46 771 760 400
- LKAB Minerals Asia Pacific Ltd (Hong Kong) +852 2827 3000
- LKAB Minerals BV (Netherlands) +31 168 388500
- LKAB Minerals Inc (USA) +1 513 322 5530
- LKAB Minerals GmbH (Germany) +49 201 45060
- LKAB Minerals Ltd (United Kingdom) +44 1724 277411 or +44 1332 673131
- LKAB Minerals Oy (Finland) +358 17 2660160
- LKAB Minerals Tianjin (China) +86 22 2435 1706

Hours of operation: 09.00 – 16.00 (local business hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

- Classification (EC 1272/2008): Physical and chemical hazards: not classified
- Human health: not classified
- Environment: not classified

The full text for all R-phrases and hazard statements are displayed in section 16.

2.2 Label elements

- Label in accordance with (EC) No. 1272/2008: no pictogram required

2.3 Other hazards

This product does not contain any PBT or vPvB substances.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Product / ingredient name</th>
<th>%</th>
<th>CAS No</th>
<th>EC No</th>
<th>Classification</th>
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<td>~99</td>
<td>14940-68-2</td>
<td>239-019-6</td>
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<td>Quartz</td>
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<td>238-878-4-</td>
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<tr>
<td>Uranium</td>
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<td>7440-61-1</td>
<td>231-170-6</td>
<td>T+;R26-28; R33 R53</td>
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</tbody>
</table>

The full text for all R-phrases and hazard statements are displayed in section 16.

REACH Registration number: Exempt
SECTION 4: First aid measures

4.1 Description of first aid measures
Inhalation: Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion: Rinse mouth thoroughly. Get medical attention if any discomfort continues.
Skin contact: Wash skin with soap and water. Get medical attention if irritation persists after washing.
Eye contact: Make sure to remove any contact lenses from the eyes before rinsing. Rinse eye with water immediately. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed
Inhalation: No specific symptoms noted.
Ingestion: No specific symptoms noted.
Skin contact: No specific symptoms noted.
Eye contact: No specific symptoms noted.

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically

SECTION 5: Fire fighting measures

5.1 Extinguishing media
This product is not flammable. Use fire extinguishing media appropriate for surrounding materials.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: None under normal conditions

5.3 Advice for firefighters
Special fire fighting procedures: No specific fire fighting procedures given

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Follow precautions for safe handling described in this safety data sheet

6.2 Environmental precautions
The product should not be dumped in nature but collected and delivered according to agreement with the local authorities.

6.3 Methods and material for containment and cleaning up
Avoid dust formation. Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Transfer to a container for disposal.

6.4 Reference to other sections
For personal protection see section 8. For waste disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid handling which leads to dust formation. Avoid inhalation of high concentrations of dust. Observe occupational exposure limits and minimise the risk of inhalation of dust.
### SECTION 7: Handling and storage

#### 7.2 Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

#### 7.3 Specific end use(s)

The identified uses for this product are detailed in section 1.2

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### SECTION 8: Exposure controls / personal protection

#### 8.1 Control parameters

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<tr>
<th>Country</th>
<th>Name</th>
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<th>STEL - 15Min</th>
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<td>0.1 mg/m³</td>
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</tr>
</tbody>
</table>
SECTION 8: Exposure controls / personal protection

A = Aveolengängiger Anteil
E = Einatembare Fraktion
GVB = Grenswaarden voor blootstelling aan chemische agentia
VLEP = Valeurs limites d'exposition professionnelle
AGW = Arbeitsplatzgrenzwert
GRV = Grænseværdier for stoffer og materialer
K(1) = betyder, at stoffet er optaget på listen over stoffer, der anses for at være kræftfremkaldende
HTP = Haitallisiksi tunnetut pitoisuudet
OTE = Οριακή Τιμή Έκθεση
MKBS = Munkahelyek kémiai biztonságáról szóló
ACGIH = American Conference of Governmental industrial Hygenists
A4(1) = Non classificable come carcinogeno per l'uomo
A2(1) = Carcinogeno sospetto per l'uomo
1 = ヒトに対して発がん性のある物質
MAC = Maximaal Aanvaarde Concentraties
NDS = Najwyższe Dopuszczalne Stężenie.
VLE = Valor limite de exposição
A4(2) = Agentes não classificáveis como carcinogénicos no Homem
A2(2) = Agente carcinogénico suspeito no Homem
ПДК = Величина Ф = аэрозоли преимущественно фиброгенного действия
4 = класс - умеренно опасные.
VLA = Valor limite Ambiental
AFS = Arbetsmiljöverkets Författningssamling
K(2) = Åmnet är cancerframkallande
WEL = Workplace exposure limit

NOTE: To request language / country specific SDS please e-mail sds@lkabminerals.com

Ingredient comments:
Dust contains respirable crystalline silica. Prolonged and/or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness. Occupational exposure to respirable dust should be monitored and controlled. The product should be handled using methods and techniques that minimise or eliminate dust generation. The product contains less than 1% w/w RCS (respirable crystalline silica) as determined by the SWERF method. The respirable crystalline silica content can be measured using the "Size-Weighted Respirable Fraction – SWERF" method. All details about the SWERF method is available at www.crystallinesilica.eu

8.2 Exposure controls

Protective equipment

Engineering measures: Provide adequate ventilation. Observe occupational exposure limits and minimise the risk of inhalation of dust.

Respiratory equipment: No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit. Wear dust masks in dusty areas.

Hand protection: No specific hand protection noted, but gloves may still be advisable.

Eye protection: Wear dust resistant safety goggles where this is a danger of eye contact.

Other protection: Provide eyewash station.

Hygiene measures: Wash hands at the end of each work shift and before eating, smoking and using the toilet.
SECTION 9: Physical and chemical properties

9.1 Information on basic and physical and chemical properties

Appearance: powder, dust
Colour: Brown
Odour: Odourless
Solubility: Insoluble in water
Melting point (°C): 2200
Relative density: 4.6

9.2 Other information
Not relevant

SECTION 10: Stability and reactivity

10.1 Reactivity
No specific reactivity hazards associated with this product.

10.2 Chemical stability
Stable under normal temperature conditions.

10.3 Possibility of hazardous reactions
Not relevant

10.4 Conditions to avoid
No specific conditions are likely to result in a hazardous situation

10.5 Incompatible materials
Materials to avoid: No specific groups of materials are likely to react to produce a hazardous situation.

10.6 Hazardous decomposition products
None under normal circumstances

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Other health effects: This substance has no evidence of carcinogenic properties.

Acute toxicity
Acute toxicity (Oral LD50): Not relevant
Acute toxicity (Dermal LD50): Not relevant
Acute toxicity (Inhalation LC50): Not relevant

Inhalation: Dust in high concentrations may irritate the respiratory system.

Ingestion: May cause discomfort if swallowed.

Skin contact: Powder may irritate skin.

Eye contact: Particles in the eyes may cause irritation and smarting.

SECTION 12: Ecological information

Ecotoxicity: Not regarded as dangerous for the environment.

12.1 Acute fish toxicity: Not considered toxic to fish.

12.2 Persistence and degradability
Degradability: The product is not readily biodegradable.

12.3 Bioaccumulative potential: The product is not bioaccumulating.
SECTION 12: Ecological information

12.4 Mobility in soil: Not relevant, due to the form of the product.

12.5 Results of PBT and vPvB assessment: This product does not contain any PBT or vPvB substances.

12.6 Other adverse effects: None known

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Dispose of waste and residues in accordance with local authority requirements.

SECTION 14: Transport considerations

Road transport notes: Not classified
Rail transport notes: Not classified
Sea transport notes: Not classified
Air transport notes: Not classified

14.1 UN Number: The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.2 UN proper shipping name: Not classified for transportation.

14.3 Transport and hazard class(es): Not classified for transportation.

14.4 Packing group: Not classified for transportation.

14.5 Environmental hazards
Environmentally hazardous substances / marine pollutant: no

14.6 Special precautions for user: Not classified for transportation.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture
Approved code of practice: Classification and labelling of substances and preparations dangerous for supply. Safety data sheets for substances and preparations.
Guidance notes: Workplace Exposure Limits EH40.

15.2 Chemical Safety Assessment: Not applicable. No chemical safety assessment has been carried out.
**SECTION 16: Other information**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
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<tr>
<td>Revision</td>
<td>2</td>
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<tr>
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<td>12.-02INT,17-11</td>
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<td>Risk phrases in full:</td>
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This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company’s knowledge and belief, accurate and reliable as of the date indicated. However no warranty guarantee or representation is made to its accuracy, reliability of completeness. It is the user’s responsibility to satisfy himself as to the suitability of such information for his own particular use.