Non-hazardous material safety data sheet for

Chrome Alumina

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: Chrome Alumina
   - REACH registration number: 01-2119529248-35
   - CAS number: 1344-28-1
   - EC number: 215-691-6

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Identified uses: Refractory material, abrasive

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.

   When water is added, the product may react with a number of metals forming hydrogen gas, which may form explosive vapour/air mixtures.
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>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide</td>
<td>82 - 95</td>
<td>1344-28-1</td>
<td>215-691-6</td>
<td>Not classified</td>
</tr>
<tr>
<td>Chromium (III) Oxide</td>
<td>5 – 18</td>
<td>1308-38-9</td>
<td>215-160-9</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

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

REACH Registration number: 01-2119529248-35

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.
SECTION 6: Accidental release measures

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.

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

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>STD</th>
<th>TWA -8Hrs</th>
<th>STEL - 15Min</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Aluminium Oxide</td>
<td>GVB / VLEP / AGW</td>
<td>5.0 mg/m³</td>
<td>10.0 mg/m³</td>
<td>A, E</td>
</tr>
<tr>
<td>Belgium</td>
<td>Aluminium Oxide</td>
<td>1.0 mg/m³</td>
<td></td>
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</tr>
<tr>
<td>China</td>
<td>Aluminium Oxide</td>
<td>4.0 mg/m³</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Czech Republic</td>
<td>Aluminium Oxide</td>
<td>PEL</td>
<td>0.1 mg/m³</td>
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<td></td>
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<tr>
<td>Denmark</td>
<td>Aluminium Oxide</td>
<td>GRV</td>
<td>2.0 mg/m³</td>
<td></td>
<td>beregnet som Al</td>
</tr>
<tr>
<td>Estonia</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chrome Oxide</td>
<td>0.02 mg/m³</td>
<td>0.06 mg/m³</td>
<td>C, S, arvutatud Cr</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Aluminium Oxide</td>
<td>VLEP</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
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<td>OTE</td>
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<td></td>
<td></td>
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<tr>
<td>Hungary</td>
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<td>MKBS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Aluminium Oxide</td>
<td>ACGIH</td>
<td>1.0 mg/m³</td>
<td>A4(1)</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Aluminium Oxide</td>
<td>NDS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Aluminium Oxide</td>
<td>VLE</td>
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<td>A4(2)</td>
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<tr>
<td>Portugal</td>
<td>Aluminium Oxide</td>
<td>VLE</td>
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<td></td>
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<tr>
<td>Russia</td>
<td>Aluminium Oxide</td>
<td>ПДК</td>
<td>6.0 mg/m³</td>
<td>A4(1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chrome Oxide</td>
<td>PДМ</td>
<td>10.0 mg/m³</td>
<td>Φ, 4</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Aluminium Oxide</td>
<td>VLA</td>
<td>10.0 mg/m³</td>
<td>3, ОБУВ</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>Aluminium Oxide</td>
<td>WEL</td>
<td>10.0 mg/m³</td>
<td>como Al</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chrome Oxide</td>
<td>PДМ</td>
<td>0.5 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A = Aveolengängiger Anteil
E = Einatembare Fraktion
GVB = Grenswaarden voor blootstelling aan chemische agentia
VLEP = Valeurs limites d'exposition professionnelle
AGW = Arbeitsplatzgrenzwert
PEL = Přípustné expoziční limity
GRV = Grænseværdier for stoffer og materialer
C = Kanserogene ained.
S = Sensibiliseerivad ained.
OTE = Οριακή Τιμή Έκθεσης
MKBS = Munkahelyek kémiai biztonságáról szóló
ACGIH = American Conference of Governmental industrial Hygienists
A4(1) = Non classificable come carcinogeno per l'uomo
A4(2) = Non classificable come carcinogeno per l'uomo
SECTION 8: Exposure controls / personal protection

NDS = Najwyższe Dopuszczalne Stężenie
VLE = Valor limite de exposição
A4\textsuperscript{11} = Agentes não classificáveis como carcinogénicos no Homem
ПДК = Величина
Ф = аэрозоли преимущественно фиброгенного действия
4 = класс - умеренно опасные.
3 = класс – опасные
ОБУВ = Ориентировочные безопасные уровни воздействия
VLA = Valor limite Ambiental
WEL = Workplace exposure limit

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

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:Granular powder, dust
Colour:Pink
Solubility:Insoluble in water
Melting point (°C):~1800

9.2 Other information
Not relevant

SECTION 10: Stability and reactivity

10.1 Reactivity
When water is added, the product reacts with a number of metals forming hydrogen gas, which may form explosive vapour/air mixtures.

10.2 Chemical stability
Stable under normal temperature conditions.

10.3 Possibility of hazardous reactions
Not relevant

10.4 Conditions to avoid
Water, moisture, acids.

10.5 Incompatible materials
Materials to avoid:

10.6 Hazardous decomposition products
When water is added, the product reacts with a number of metals forming hydrogen gas, which may form explosive vapour/air mixtures.
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.

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
SECTION 14: Transport considerations

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

Revision date: 11/10/2016
Revision: 2
Document no: 12-,02INT,16-10
Risk phrases in full: NC – not classified

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