SAFETY DATA SHEET

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

Product identifier
Trade name or designation of the mixture  BROWN FUSED ALUMINUM OXIDE
Registration number  01-2119529248-35-0141
Synonyms  ALOCAL, ALOMAX, ALOTAB, AR, BT, BTCAL, MAXCAL, SFAR, SFARHT, SFCW, TB, SFARBF, BTBF
Date of first issue  01-February-2012
Version number  01
Revision date  -
Supersedes date  -

Relevant identified uses of the substance or mixture and uses advised against
Identified uses  Abrasives, Ceramics, Flooring, Surface Treatment and Refractory.
Uses advised against  -

Details of the supplier of the safety data sheet
Company identification  ELFUSA GERAL DE ELETROFUSÃO LTDA
501, Julio Michelazzo,
São João da Boa Vista, São Paulo – Brazil ZIP CODE 13872-900
+55.19.3634.2300
qualidade@elfusa.com.br
comercial@elfusa.com.br
www.elfusa.com.br
Elfusa Trading SL.
Mijas
Malaga – Spain
Mr. Ruben Sinato
+55.11.9973.8421
ruben.sinato@grupocurimbaba.com.br
1-760-476-3961
Access Code: 333691

Section 2: Hazards identification

Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended
This substance does not meet the criteria for classification according to Directive 67/548/EEC as amended.

Classification according to Regulation (EC) No 1272/2008 as amended
This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary

Physical hazards  Not classified for physical hazards.
Health hazards  Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.
Environmental hazards  Not classified for hazards to the environment.
Specific hazards  Dust may cause eye, skin and respiratory tract irritation. Prolonged and repeated overexposure to dust can lead to pneumoconiosis.
Main symptoms  Irritation of eyes and mucous membranes. Irritation of nose and throat.

Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard statements  The mixture does not meet the criteria for classification.
Precautionary statements

Prevention: Observe good industrial hygiene practices.
Response: Wash hands after handling.
Storage: Store away from incompatible materials.
Disposal: Dispose of waste and residues in accordance with local authority requirements.

Supplemental label information: None.
Other hazards: Not a PBT or vPvB substance or mixture.

Section 3: Composition/information on ingredients

Mixture

General information

Classical information

Chemical name | % | CAS-No. / EC No. | REACH Registration No. | INDEX No. | Notes
---|---|---|---|---|---
Aluminium oxide | ≥ 92 | 1344-28-1/215-691-6 | 01-2119529248-35-0141 | - | #

Classification:

DSD: -
CLP: -

Impurities:

SiO2+Fe2O3+Na2O+CaO+MgO+TiO2 | ≤ 8 | N/A | - | - | -

Classification:

DSD: -
CLP: -

#: This substance has workplace exposure limit(s).

Composition comments

This product is registered under the REACH Regulation 1907/2006 as a mono-constituent substance. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. For more detailed chemical composition, refer to the certificate of analysis.

Section 4: First aid measures

General information

Get medical attention if any discomfort develops.

Description of first aid measures

Inhalation

Move to fresh air. Get medical attention if any discomfort continues.

Skin contact

Wash with soap and water. Get medical attention if irritation develops or persists.

Eye contact

Flush eyes thoroughly with water for at least 15 minutes. Get medical attention if irritation develops or persists.

Ingestion

Immediately rinse mouth and drink plenty of water. Get medical attention if irritation develops and persists.

Most important symptoms and effects, both acute and delayed

Irritation of eyes and mucous membranes. Irritation of nose and throat.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Section 5: Firefighting measures

General fire hazards

The product is not flammable.

Extinguishing media

Suitable extinguishing media

Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media

No restrictions known.

Special hazards arising from the substance or mixture

None known.

Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

Special firefighting procedures

Move containers from fire area if you can do it without risk.
Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in section 8 of this safety data sheet.

For emergency responders

Wear protective clothing as described in Section 8 of this safety data sheet.

Environmental precautions

Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Recover and recycle, if practical. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not vacuum clean unless vacuum cleaners are equipped with HEPA filter.

Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

Section 7: Handling and storage

Precautions for safe handling

Provide adequate ventilation. Use work methods which minimise dust production. Avoid inhalation of dust and contact with skin and eyes. Wear appropriate personal protective equipment. Do not add wet alumina to electrolysis cells. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in a dry place.

Specific end use(s)

For detailed information, see section 15. Recommendations given in the exposure scenario for the uses are distributed and annexed as separate documents to this eSDS.

Section 8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Austria. MAK List</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td></td>
<td></td>
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</tr>
<tr>
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<tr>
<td>Aluminium oxide (1344-28-1)</td>
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<td>1.5 mg/m3</td>
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<td>Aluminium oxide (1344-28-1)</td>
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<td>Germany. DFG MAK List</td>
<td>(advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)</td>
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<td>(Hygiene Norm HN 23:2007)</td>
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<td>Concentrations and Intensities in Working Environment</td>
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<td>Portugal</td>
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### Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

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<th>Material</th>
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<tr>
<td>Aluminium oxide</td>
<td>STEL</td>
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<td>Aerosol</td>
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<tr>
<td>(1344-28-1)</td>
<td>TWA</td>
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<td>Aerosol</td>
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<tr>
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<td>2 mg/m³</td>
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<td>0.5 ppm</td>
<td>Aerosol</td>
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### Slovakia. OELs. Decree of the government of the Slovak Republic concerning protection of health in work with chemical agents

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<tr>
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<th>Form</th>
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</thead>
<tbody>
<tr>
<td>Aluminium oxide</td>
<td>TWA</td>
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<td>Inhalable fraction.</td>
</tr>
<tr>
<td>(1344-28-1)</td>
<td></td>
<td>1.5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 mg/m³</td>
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### Spain. Occupational Exposure Limits

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<tbody>
<tr>
<td>Aluminium oxide</td>
<td>TWA</td>
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### Sweden. Occupational Exposure Limit Values

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<td>Aluminium oxide</td>
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### Switzerland. SUVA Grenzwerte am Arbeitsplatz

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<tr>
<td></td>
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<td>3 mg/m³</td>
<td>Fume and respirable dust.</td>
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### UK. EH40 Workplace Exposure Limits (WELs)

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### Recommended monitoring procedures

Follow standard monitoring procedures.
**DNEL**

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<td>Oral</td>
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<td>Long term exposure systemic effects</td>
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<td></td>
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<td>Inhalation</td>
<td>15.63 mg/m³</td>
<td>Long term exposure local effects</td>
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**Components**

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**PNEC**

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<tr>
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<td>Not applicable</td>
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<td>Sewage Treatment Plant</td>
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<td>Not applicable</td>
<td>20 mg/l</td>
</tr>
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**Exposure controls**

**Appropriate engineering controls**

Provide sufficient ventilation for operations causing dust formation. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn.

**Individual protection measures, such as personal protective equipment**

**General information**

Use personal protective equipment as required. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face protection**

Wear goggles/face shield.

**Skin protection**

- **Hand protection**
  Wear protective gloves. Suitable gloves can be recommended by the glove supplier.
- **Other**
  Wear suitable protective clothing.

**Respiratory protection**

In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2). Seek advice from local supervisor.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures**

Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practices. Follow up on any medical surveillance requirements.

**Environmental exposure controls**

Contain spills and prevent releases and observe national regulations on emissions.

**Section 9: Physical and chemical properties**

**Information on basic physical and chemical properties**

**Appearance**

Brown and gray powder.

**Physical state**

Solid.

**Form**

Powder.

**Colour**

Brown and gray.

**Odour**

Odourless.

**Odour threshold**

Not available.

**pH**

Not applicable.

**Melting point/freezing point**

2040 °C (3704 °F)

**Boiling point, initial boiling point, and boiling range**

Not available.

**Flash point**

Not applicable.

**Auto-ignition temperature**

Not applicable.

**Flammability (solid, gas)**

Non flammable.

**Flammability limit - lower (%)**

Not available.
Flammability limit - upper (%)
- Not available.

Oxidising properties
- Not oxidizing.

Explosive properties
- Not explosive.

Explosive limit
- Not applicable.

Vapour pressure
- Not applicable.

Vapour density
- Not applicable.

Evaporation rate
- Not applicable.

Relative density
- 3.97 at 20 °C

Solubility (water)
- Insoluble

Partition coefficient (n-octanol/water)
- Not applicable.

Decomposition temperature
- Not available.

Bulk density
- Not applicable.

Viscosity
- Not applicable.

Percent volatile
- Not available.

Other information
- No relevant additional information available.

Section 10: Stability and reactivity
Reactivity
- The product is non reactive under normal conditions of use, storage and transport.

Chemical stability
- Stable at normal conditions.

Possibility of hazardous reactions
- Hazardous polymerisation does not occur. Hazardous reactions do not occur.

Conditions to avoid
- Moisture. Contact with incompatible materials.

Incompatible materials
- None known.

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
- Ingestion: Ingestion may cause irritation and malaise.
- Inhalation: Dust may irritate respiratory system.
- Skin contact: Dust may irritate skin.
- Eye contact: Dust may irritate the eyes.

Symptoms
- Irritation of eyes and mucous membranes. Irritation of nose and throat.

Information on toxicological effects
Acute toxicity
- Dust may cause eye, skin and respiratory tract irritation.

Product

<table>
<thead>
<tr>
<th>Product</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium oxide (1344-28-1)</td>
<td>Acute Inhalation LC50 Rat: &gt; 2,3 mg/l 4 hours</td>
</tr>
<tr>
<td></td>
<td>Acute Oral LD50 Rat: &gt; 5000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
- May cause irritation through mechanical abrasion.

Serious eye damage/eye irritation
- May cause irritation through mechanical abrasion.

Respiratory sensitisation
- Not classified.

Skin sensitisation
- Not a skin sensitiser.

Germ cell mutagenicity
- Test data conclusive but not sufficient for classification.

Carcinogenicity
- Test data conclusive but not sufficient for classification.

Reproductive toxicity
- Test data conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure
- Test data conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure
- Test data conclusive but not sufficient for classification.

Aspiration hazard
- Not classified.
Section 12: Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium oxide (1344-28-1)</td>
<td>EC50 Daphnia magna: &gt; 100 mg/l 48 hours</td>
</tr>
<tr>
<td></td>
<td>EC50 Green algae (Selenastrum capricornutum): &gt; 100 mg/l 72 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Salmo trutta: &gt; 100 mg/l 96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability

The product is not biodegradable.

Bioaccumulative potential

The product is not bioaccumulating.

Mobility

The product is insoluble in water.

Environmental fate - Partition coefficient

Not applicable.

Mobility in soil

Aluminum oxide is not mobile in the environment, unless it comes into contact with an aqueous environment with a pH below 5.5 or above 8.5.

Results of PBT and vPvB assessment

Not a PBT or vPvB substance or mixture.

Other adverse effects

Not expected to be harmful to aquatic organisms.

Section 13: Disposal considerations

Waste treatment methods

Residual waste

Recover and recycle, if practical. Dispose of in accordance with local regulations.

Contaminated packaging

Offer rinsed packaging material to local recycling facilities. Dispose of in accordance with local regulations.

EU waste code

16 05 09

Disposal methods/information

Dispose in accordance with all applicable regulations.

Section 14: Transport information

ADR

The product is not covered by international regulation on the transport of dangerous goods.

RID

The product is not covered by international regulation on the transport of dangerous goods.

ADN

The product is not covered by international regulation on the transport of dangerous goods.

IATA

The product is not covered by international regulation on the transport of dangerous goods.

IMDG

The product is not covered by international regulation on the transport of dangerous goods.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No information available.

Section 15: Regulatory information

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.
Directive 96/61/EC concerning integrated pollution prevention and control (IPPC): Article 15, European Pollution Emission Registry (EPER)
Not listed.
Regulation (EC) No. 1907/2006, REACH Article 59(1). Candidate List
Not listed.

Other regulations
This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 (CLP Regulation) and Directive 67/548/EEC and their amendments respectively. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations
Follow national regulation for work with chemical agents.

Chemical safety assessment
For this substance a chemical safety assessment has been carried out.

Section 16: Other information

List of abbreviations
- DNEL: Derived No-Effect Level.
- PNEC: Predicted No-Effect Concentration.
- PBT: Persistent, bioaccumulative and toxic.
- vPvB: Very Persistent and very Bioaccumulative.
- DSD: Directive 67/548/EEC.
- LD50: Lethal Dose, 50%.
- LC50: Lethal Concentration, 50%.

References
IUCLID
Chemical safety report.

Information on evaluation method leading to the classification of mixture
The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

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

Training information
Follow training instructions when handling this material.

Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available.

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