



# Safety data sheet

## Aluminium oxide



Basically aluminium oxide is a non-hazardous substance. An MSDS is not mandatory required. The data sheet is provided on voluntary basis according to REACH Regulation (EC) No. 1907/2006.

## 1. Identification of the substance/mixture and of the company /undertaking

### 1.1. Product identifier

**Product name:** aluminium oxide

**Trade name:** aluminium-oxide; alumina; calcined aluminas; ground aluminas; reactive aluminas; polishing aluminas.

**CAS name:** aluminium oxide  
**CAS Number:** 1344-28-1  
**EU name:** aluminium oxide  
**EU Number:** 215-691-6  
**IUPAC name:** oxo(oxoalumanyloxy)alumane

**Company product codes:** Salox... (ALO-...)  
**Substance type:** mono constituent; inorganic substance

**REACH-Registration No.:** 01-2119529248-35-0114

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

Feedstock, Ceramics, Refractories, Glass, Abrasives, Fillers, Water treatment, Industrial applications, Others: e.g. lubricants and greases, chemical reagents...

Uses advised against: Not known.

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer:

SILKEM Hungary Korlátolt Felelősségű Társaság

**Country:** Hungary  
**Head office:** Magyarország, H-8104 Várpalota, Fehérvári út 26.  
**Branch office 1.:** Magyarország, H-8400 Ajka, Gyártelep 598 hrsz.  
**Company phone:** (+36) 88 522 400  
**Telefax:** (+36) 88 371 889  
**Email:** [silkem@silkem.hu](mailto:silkem@silkem.hu)  
**Contact person:** Jáger Zoltán  
**Email:** [jagerz@silkem.hu](mailto:jagerz@silkem.hu)

### 1.4. Emergency telephone number

#### National Emergency contact:

**Name:** Egészségügyi Toxikológiai Tájékoztató Szolgálat

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Fióktelepek: HU 8400 Ajka, Gyártelep 598 hrsz.

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Address: 1096 Budapest, Nagyváradi tér 2.  
Country: Hungary  
Phone: +36 1 476 6464; +36 80 201 199  
Telefax: +36 1 476 1138  
Email: ettsz@okbi.antsz.hu  
Homeoage: www.okbi.hu

## 2. Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008: not classified, no H-phrases  
Classification according to Directive 67/548/EEC: not classified, no R-phrases.

### 2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008: **none / no signal word**

Labelling according to Directive 67/548/EEC: **none / no signal word**

Precautionary statements (recommendation):

In case of longer period or high level airborne dust respiratory truck mechanical irritation should be happened.

P261 Avoid breathing dust.  
P280 Wear eye protection.  
P285 In case of inadequate ventilation wear respiratory protection.  
P305 + P351 + P338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P302 + P352 IF ON SKIN: Wash with soap and water.

### 2.3. Other hazards

None

## 3. Composition/information on ingredients

### 3.1. Substances

Product name: aluminium oxide  
CAS number: 1344-28-1  
EU number: 215-691-6  
Purity: > 95 % (w/w)

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### 4. First aid measures

First aide personnel: pay attention to self- protection!

#### 4.1. Description of first aid measures

Inhalation: Move to fresh air. Consult physician if necessary.  
Skin contact: Mechanical (dry) removal, than rinsing with water  
Eye contact: Rinse with plenty of water. Consult physician if necessary.  
Ingestion: Rinse mouth and give plenty of water to drink. Consult physician if necessary.  
Advice to medical treatment: No special advice.

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

None

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

None

### 5. Firefighting measures

#### 5.1. Extinguishing media

The substance is inflammable and non-explosive.

Suitable extinguishing media: Use fire fighting media appropriate for surrounding materials.

Unsuitable extinguishing media: None

#### 5.2. Special hazards arising from the substance or mixture

None

#### 5.3. Advice for firefighters

None

### 6. Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Avoid dust formation. In case of exposure to high level airborne dust wear a personal respirator in compliance the local bye-laws. See seesection 8.



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### 6.1.2. For emergency responders

In case of exposure to high level airborne dust wear a personal respirator in compliance the local bye-laws. See section 8.

### 6.2. Environmental precautions

Avoid dispersal of spilled material and runoff. Avoid creating dusty conditions and prevent wind dispersal. Collect material for recycling if possible.

### 6.3. Methods and material for containment and cleaning up

The material can be taken up mechanically and disposed of observing the national regulations.

### 6.4. Reference to other sections

See: 2.2. Label elements; 7. Handling and storage; 8. Exposure controls/personal protection; 13. Disposal considerations.

## 7. Handling and storage

General advice: Handle in accordance with good industrial hygiene and safety practice. Wear suitable personal working cloth and protective equipment. Do not add wet alumina to electrolysis cells.

### 7.1. Precautions for safe handling

Dust generation:	Avoid dust formation. No special handling advice required.
Eating, hygiene in work area:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Precautions against fire and explosion: The substance is inflammable and non-explosive.

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

Condition of storage rooms and tanks: No any special precautions required.

Incompatible substances or mixtures: None

Further information of storage: Dry storage.

Packaging compatibilities: None

### 7.3. Specific end use(s)

Feedstock, Ceramics, Refractories, Glass, Abrasives, Fillers, Water treatment, Industrial applications, Others: e.g. lubricants and greases, chemical reagents...

## 8. Exposure controls/personal protection

### 8.1. Control parameters

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Components with specific control parameters as limit values: Occupational exposure limits (air): generally same as for nuisance dust.

Observe the local by-laws in terms of dust.

(Germany: inhalable dust 10 mg/m<sup>3</sup>, respirable dust 3 mg/m<sup>3</sup>;  
Great Britain: inhalable dust 10 mg/m<sup>3</sup>, respirable dust 4 mg/m<sup>3</sup>;  
USA: OSHA Respirable fraction: 5 mg/m<sup>3</sup>, Total dust: 15 mg/m<sup>3</sup>;  
Hungary: Egyéb inert porok - totális (belélegezhető): 10 mg/m<sup>3</sup>; respirábilis: 6 mg/m<sup>3</sup>)

Exposure limits for industrial workers:

Observe the local by-laws in terms of dust.

(Germany: inhalable dust 10 mg/m<sup>3</sup>, respirable dust 3 mg/m<sup>3</sup>;  
Great Britain: inhalable dust 10 mg/m<sup>3</sup>, respirable dust 4 mg/m<sup>3</sup>;  
USA: OSHA - Respirable fraction: 5 mg/m<sup>3</sup>, Total dust: 15 mg/m<sup>3</sup>;  
Hungary: Egyéb inert porok - totális (belélegezhető): 10 mg/m<sup>3</sup>; respirábilis: 6 mg/m<sup>3</sup>)

Exposure limits for professional workers:

Observe the local by-laws in terms of dust.

(Germany: inhalable dust 10 mg/m<sup>3</sup>, respirable dust 3 mg/m<sup>3</sup>;  
Great Britain: inhalable dust 10 mg/m<sup>3</sup>, respirable dust 4 mg/m<sup>3</sup>;  
USA: OSHA - Respirable fraction: 5 mg/m<sup>3</sup>, Total dust: 15 mg/m<sup>3</sup>;  
Hungary: Egyéb inert porok - totális (belélegezhető): 10 mg/m<sup>3</sup>; respirábilis: 6 mg/m<sup>3</sup>)

Exposure limits for consumers:

Not applicable.

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

Avoid dust formation. Appropriate local exhaust ventilation is recommended.

### 8.2.2. Individual protection measures, such as personal protective equipment

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended.

- (a) Eye / face protection: Safety glasses with side-shields.  
(b) Skin protection: No special protective equipment required. Wearing of closed work clothing is recommended.  
(b.1) Hand protection: Protective gloves.  
(b.2) Other: -  
(c) Respiratory protection: Respiratory protection: During production process dust is generated; and if ventilation is inadequate, wear dust masks or respirators (P2; P3; FFP2 or FFP3)  
(d) Thermal hazards: Not applicable.



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### 8.2.3. Environmental exposure controls

No special exposure controls required.

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

(a) Appearance:	white odourless powder
(b) Odour:	odourless
(c) Odour threshold:	-
(d) pH:	Not applicable.
(e) Melting point/freezing point:	2000 °C 1013 hPa
(f) Initial boiling point and boiling range:	2980 °C 1013 hPa
(g) Flash point:	Not applicable.
(h) Evaporation rate:	Not applicable.
(i) Flammability (solid, gas):	Not flameable.
(j) Upper/lower flammability or explosive limits:	Not applicable.
(k) Vapour pressure:	1 hPa at 2158 °C
(l) Vapour density:	Not applicable.
(m) Relative density:	3,99 g/cm <sup>3</sup> at 20 °C
(n) Solubility(ies):	in water: very low (0.00002 g/L at 20 °C)
(o) Partition coefficient n-octanol/water:	Not applicable.
(p) Auto-ignition temperature:	Not applicable.
(q) Decomposition temperature:	Not applicable.
(r) Viscosity:	Not applicable.
(s) Explosive properties	Not explosive.
(t) Oxidising properties:	Not oxidizing.

### 9.2. Other information

Granulometry: 0,1 - 250 micron

## 10. Stability and reactivity

### 10.1. Reactivity

The substance is not reactive.

### 10.2. Chemical stability

The substance is stable under normal conditions.



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### 10.3. Possibility of hazardous reactions

No hazardous reactions known.

### 10.4. Conditions to avoid

None

### 10.5. Incompatible materials

None

### 10.6. Hazardous decomposition products

No hazardous decomposition products known.

## 11. Toxicological information

Oral uptake < 0.1%. Nearly insoluble in lung fluids. Most absorbed aluminium oxide is rapidly excreted through urine. Main deposit in body is in bone structure.

### 11.1. Information on toxicological effects

It is recommended that aluminium oxide is not to be classified for acute oral, dermal and inhalation toxicity.

#### 11.1.1. Substances

(a) acute toxicity:	Acute Oral:	No bioaccumulation potential.
	Acute Inhalation:	LD50 (rat) > 2000 mg/kg bw
	Acute Dermal:	LC50 (4 hs) : > 2.3 mg/L air
(b) skin corrosion/irritation:	Not applicable.	
(c) serious eye damage/irritation:	Not eye irritant, OECD TG 405.	
(d) respiratory or skin sensitisation:	No effects apart from mechanical irritation.	
(e) germ cell mutagenicity:	Landsteiner / Draize method, test substance is not a sensitizer.	
(f) carcinogenicity:	Genetic toxicity:	Negative.
(g) reproductive toxicity:	No a systemic carcinogenic effect from exposure to aluminium oxide.	
(h) STOT-single exposure:	Negative. There is no evidence of any CMR effects.	
(i) STOT-repeated exposure:	NOAEL (chronic, rat) 30 mg Al/kg bw/day as aluminium citrate.	
(j) aspiration hazard:	NOAEC (subchronic, rat) 70 mg Al/m <sup>3</sup> as aluminium oxide.	

## 12. Ecological information

### 12.1. Toxicity

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With regard to PBT and vPvB assesment Annex XIII of the REACH Regulation (EC) No. 1907/2006 is not applicable to inorganic substances. As aluminium metal, powders and oxide are not bio -available, owing to their extreme insolubility in water, and small bioaccumulation factors (<250), hence they do not fulfil either of the PBT and vPvB criteria for classification.

Fish ( <i>Salmo Trutta</i> ) toxicity:	LC/EC 50: > 100mg/l; pH 8
Invertebrate ( <i>Daphnia Magna</i> ) toxicity:	LC/EC 50: > 100mg/l; pH 8
Algea ( <i>Selenastrum Capricornutum</i> ) toxicity:	LC/EC 50: > 100mg/l; pH 8

### 12.2. Persistence and degradability

Not relevant. Not degradable.

### 12.3. Bioaccumulative potential

Not bio accumulative.

### 12.4. Mobility in soil

Not mobile under normal environmental conditions, may be leached from the ground at low pH (< 5.5) or high pH (> 8.5).

### 12.5. Results of PBT and vPvB assessment

Not PBT, vPvB substance.

### 12.6. Other adverse effects

None

## 13. Disposal considerations

If it is possible reuse or recycle. The waste can be handled according to the local bye-laws.

### 13.1. Waste treatment methods

Recycling of the used, fully emptied packaging according to the local bye-laws.

## 14. Transport information

### 14.1. UN number

UN numbers are four-digit numbers that identify hazardous substances  
UN number: Non hazardous material.





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### 14.2. UN proper shipping name

Overland freight: Non hazardous material.  
ADR/RID class: Non hazardous material.  
Sea freight: Non hazardous material.  
IMDG class: Non hazardous material.  
Air freight: Non hazardous material.  
ICAO/I ATA class: Non hazardous material.

### 14.3. Transport hazard class(es)

Non hazardous material.

### 14.4. Packing group

Non hazardous material.

### 14.5. Environmental hazards

Non hazardous material.

### 14.6. Special precautions for user

Non hazardous material.

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC

Non hazardous material.

## 15. Regulatory information

This product is not classified and labelled in accordance with EC directives. No hazard symbol is necessary.

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

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

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COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

COMMISSION REGULATION (EU) No 830/2015 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Chemical Safety Report of aluminium oxide

Hungarian decree: 25/2000. (IX. 30.) EüM-SzCsM együttes rendelet a munkahelyek kémiai biztonságáról. Hungarian decree: 44/2000. (XII. 27.) EüM rendelet a veszélyes anyagokkal és a veszélyes készítményekkel kapcsolatos egyes eljárások, illetve tevékenységek részletes szabályairól. Hungarian regulation: 2000. évi XXV. Törvény a kémiai biztonságról.

## 15.2. Chemical safety assessment

Chemical Safety Assessment (CSR) has been done.

## 16. Other information

### Exposure Scenario:

As a result of the hazard assessment and PBT/vPvB assessment it is found that SUBSTANCE aluminium hydroxide (CAS Number: 21645-51-29 does not meet the criteria for classification as hazardous (according to Directives 67/548/EEC and 1272/2008/EC) nor is it considered to be a PBT/vPvB. Exposure assessment and the subsequent step of risk characterisation is not required.

### Marking of revision:

01.05.2016. : Basic version

### Abbreviations and acronyms:

PBT - Persistent, Bioaccumulative and Toxic chemicals.

vPvB - very Persistent, very Bioaccumulative.

LD - Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

LC - Lethal Concentration. The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours) is the LC50 value.

UVCB substances - substances of unknown or variable composition, complex reaction products or biological materials.

CMR effects - carcinogenicity, mutagenicity and toxicity for reproduction.

CAS - Chemical Abstracts Service (division of the American Chemical Society)

OSHA - Occupational Safety and Health Administration (US) ADR - Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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RID - Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations concerning the International Transport of Dangerous Goods by Rail) IMDG: - International Maritime Code for Dangerous Goods

IATA - International Air Transport Association

IATA-DGR - Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO - International Civil Aviation Organization

ICAO-TI - Technical Instructions by the "International Civil Aviation Organization"

(ICAO) GHS - Globally Harmonized System of Classification and Labelling of Chemicals

EINECS - European Inventory of Existing Commercial Chemical Substances PNEC -

Potential No Effect Concentration

DNEL - Derived No Effect Level

DOC - Dissolved Organic Compounds

### List of relevant H and P phrases:

P261 Avoid breathing dust.

P280 Wear eye protection.

P285 In case of inadequate ventilation wear respiratory protection.

P305 + P351 + P338 IF IN EYES:

Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P302 + P352 IF ON SKIN:

Wash with soap and water.

### Remarks:

This Safety Data Sheet contains our currently known information. The Safety Data Sheet was prepared according to our best knowledge, but only for information. Therefore the given data do not serve any guaranty or legal obligation concerning to characteristics of the product.

This Safety Data Sheet serves for help to the user in making his own decision about suitability of the product to his own usage goals.

Because the handling, storing, using and annihilation are out of our competence, we preclude the responsibility concerning to the handling, storing, using and annihilation of product.

If the product is used as a component of an other product this Safety Data Sheet can not be used any more.

### Standard commercial types:

calcined aluminas:

**SALOX 200** (ALO-B15); **SALOX 50** (ALO-Ex30); **SALOX 50S1** (ALO-Ex31);

**SALOX S50** (ALO-Ex32); **SALOX S15**, (ALO-Ex325); **SALOX S6** (ALO-Ex33);

**SALOX S1** (ALO-GB1-K); **SALOX M-S1** (ALO-Ex34); **SALOX M-LS1** (ALO-Ex35 LS); **SALOX IN** (SPK-1);

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### ground aluminas:

**SALOX M-S1G** (ALO-DN-10); **SALOX M-S1MG** (ALO-DN-7P); **SALOX M-S1FG** (ALO-G4-4G); **SALOX M-S1FG** (ALO-G4-4); **SALOX M-S1FGS1** (ALO-DN-4F); **SALOX M-S1FGS2** (ALO-DN-4S); **SALOX M-S1SG** (ALO-DN-3S); **SALOX S1FG** (ALO-KN-4F); **SALOX S1SG** (ALO-KN-4S); **SALOX M-LS1MG** (ALO-EL-7P); **SALOX M-LS1FG** (ALO-EL-4F); **SALOX M-LS1FGS1** (ALO-EL-4S); **SALOX M-LS1SG** (ALO-EL-3S); **SALOX S200G** (ALO-G22-10); **SALOX S50SG** (ALO-G2-2); **SALOX S15SGS1** (ALO-G32-2); **SALOX S1FGS1** (ALO -G5-4); **SALOX M-S1FGS3** (ALO-FC-FO); **SALOX M-S1SGS1** (ALO-G4-3G); **SALOX M-S1SGS2** (ALO-LF4-3); **SALOX M-LS1FGS2** (ALO-G4-4 LS); **SALOX M-LS1MGS1** (ALO-G6-7 LS); **SALOX M-MS1FG** (ALO-G4-4GS);

### reactive aluminas:

**SALOX M-LS1R** (ALO-EL-2S); **SALOX M-S1R** (ALO-DN-2S); **SALOX M-S1RS1** (ALO-DN-21); **SALOX M-S1RS2** (ALO-DN-23); **SALOX S1R** (ALO-KN-2S)

### polishing aluminas:

**SALOX S15P** (ALO-P90); **SALOX S15GP** (ALO-P90-20); **SALOX S15GP1** (ALO-DF2); **SALOX S15FGP** (ALO-P90-06); **SALOX S15SGP** (ALO-P90-02); **SALOX S6P** (ALO-P95); **SALOX S6GP** (ALO-DF223); **SALOX S6MGP** (ALO-P95-08); **SALOX S6FGP** (ALO-P95-06); **SALOX S6SGP** (ALO-P95-01); **SALOX M-S1P** (ALO-DFC); **SALOX M-S1P1** (ALO-P54); **SALOX M-S1GP** (ALO-DFM); **SALOX M-S1FGP** (ALO-P54-04)

Any modification or change in the listing of commercial, standrad types does not mean the revision of Safety Data Sheet, since concerning the merrits remains unchanged.

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