SAFETY DATA SHEET

Calcined Alumina

Section 1. Identification

GHS product identifier : Calcined Alumina

Other means of identification : Smelter grade alumina, SGA, alumina, aluminium oxide

Additional information:
Grades available (list subject to variation and change): AMB, APN, ATS, COPES, M4R, XMD01, P series, A4series, AC series, AR series, GA series, Rebal , PEX 2XXX series

Product type : Powder.

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

Product use : feedstock for the manufacture of aluminium metal and various aluminium oxide based materials e.g. tabular alumina, fused alumina, bubble alumina, sintered alumina, Spinel, Mullite, calcium aluminate cement, beta-alumina, zirconia alumina. Manufacture of ceramics, tiles, porcelain, hotel-ware, refractories, abrasives, polishing and cleaning compounds, wear parts, brake linings, electrical insulating materials, spark plugs, fillers, toothpaste, cosmetics. Media for sand blasting and heat treatment.

Area of application : Industrial applications.

Supplier/Manufacturer : Alteo Gardanne
Route de Biver BP 43
13541 Gardanne cedex
FRANCE
Telephone no.+33 442 65 22 83

e-mail address of person responsible for this SDS : msds@alteo-alumina.com

Emergency telephone number (with hours of operation) : 440-460-2600 or 800-321-3864 (toll free)

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Other means of identification : Smelter grade alumina, SGA, alumina, aluminium oxide

Additional information:
Grades available (list subject to variation and change): AMB, APN, ATS, COPES, M4R, XMD01, P series, A4series, AC series, AR series, GA series, Rebal , PEX 2XXX series

CAS number/other identifiers

CAS number : 1344-28-1

Product code : Not available.

Ingredient name	Other names	%	CAS number
aluminium oxide	Not available.	>98	1344-28-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Move exposed person to fresh air. Get medical attention if symptoms occur.

Skin contact : Wash with soap and water. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : No specific treatment. Treat symptomatically.

Specific treatments : No specific treatment.

Protection of first-aiders : No special protection is required. See Section 8 for information on appropriate personal protective equipment.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : None.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Avoid breathing dust. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Recycle, if possible. Waste must be disposed of according to applicable regulations.

Large spill : Recycle, if possible. Avoid creating dusty conditions and prevent wind dispersal. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Waste must be disposed of according to applicable regulations.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid creating dusty conditions and prevent wind dispersal.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Avoid contamination by any source including metals, dust and organic materials.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
aluminium oxide	**OSHA PEL 1989 (United States, 3/1989).** TWA: 10 mg/m³ 8 hours. Form: Dust TWA: 5 mg/m³ 8 hours. Form: Respirable fraction **NIOSH REL (United States, 6/2009).** TWA: 5 mg/m³, (as Al) 10 hours. Form: PYRO POWDERS AND WELDING FUMES **OSHA PEL (United States, 6/2010).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust **ACGIH TLV (United States, 2011).** TWA: 1 mg/m³, (Respirable fraction)

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Avoid creating dusty conditions and prevent wind dispersal.

Individual protection measures

Hygiene measures : 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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Skin protection

Hand protection : Wear suitable gloves.

Body protection : No special protective clothing is required.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid. [Powder.]

Color : White.

Odor : Odorless.

Odor threshold : Not applicable.

pH : Not applicable.

Section 9. Physical and chemical properties

Melting point : 2072°C (3761.6°F)

Boiling point : 2977°C (5390.6°F)

Flash point : Not applicable.

Evaporation rate : Not applicable.

Flammability (solid, gas) : Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not applicable.

Vapor density : Not available.

Relative density : 3.97

Solubility : Insoluble in the following materials: cold water and hot water.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not applicable.

SADT : Not applicable.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion

Not available.

Conclusion/Summary

Skin : No significant irritation expected other than possible mechanical irritation.

Eyes : No significant irritation expected other than possible mechanical irritation.

Section 11. Toxicological information

Respiratory : No significant irritation expected other than possible mechanical irritation.

Sensitization

Not available.

Conclusion/Summary

Skin : Non-irritant to skin.

Respiratory : Non-irritating to the respiratory system.

Mutagenicity

Not available.

Conclusion/Summary : No mutagenic effect.

Carcinogenicity

Not available.

Conclusion/Summary : No carcinogenic effect.

Reproductive toxicity

Not available.

Conclusion/Summary : Not considered to be toxic to the reproductive system.

Teratogenicity

Not available.

Conclusion/Summary : No teratogenic effect.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Section 11. Toxicological information

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
aluminium oxide	EC50 >100 mg/l	Algae - Selenastrum capricornutum	72 hours
	EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
	EC50 >100 mg/l	Fish - Salmo trutta	96 hours

Conclusion/Summary : No acute or chronic classification is appropriate for Al metal massive based on non toxic results below the Ecotoxicity Reference Value (ERV) of tests with aluminium metal, oxide and hydroxide at loadings of 100 mg/L at pH 8-8.5 (maximum solubility of Al expected).
All aluminium in soil or the aquatic environment comes from natural sources. Local sources has an insignificant contribution and impact on environment.

Persistence and degradability

Conclusion/Summary : Not readily biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
aluminium oxide	-	-	Not readily

Bioaccumulative potential

Not available.

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{OC}) : Not available.

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

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : Recycle to process, if possible. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

Section 15. Regulatory information

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

SARA 313

Not applicable.

State regulations

Massachusetts : The following components are listed: ALUMINUM OXIDE

New York : None of the components are listed.

New Jersey : The following components are listed: ALUMINUM OXIDE; alpha-ALUMINA

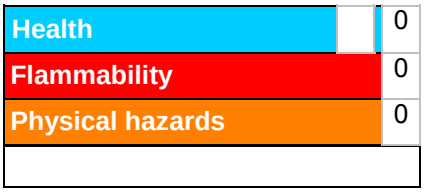
Pennsylvania : The following components are listed: ALUMINUM OXIDE (AL2O3)

California Prop. 65

None of the components are listed.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 08/27/2013

Section 16. Other information

Date of previous issue : No previous validation

Version : 1

Prepared by : IHS

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : HCS (U.S.A.)- Hazard Communication Standard
International transport regulations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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