

ALUMINIUM HYDROXIDE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

ALUMINIUM HYDROXIDE
Aluminium Trihydroxide; Alumina Trihydrate (ATH)
CAS: 21645-51-2

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Flame-retardant filler and smoke suppressant for plastics, rubber and cable compounds, functional filler/extender in paints, coatings, paper and adhesives, raw material for activated alumina and aluminium chemicals, and antacid raw material in pharmaceutical formulations. For industrial/professional user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Based on the available data, this product does not meet the criteria for classification as a hazardous substance/mixture under GHS.

Not classified	Not classified as hazardous to health, physical hazards or the environment under GHS criteria based on available data.
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2.2 GHS label elements, including precautionary statements:

GHS: No signal word required

Hazard statements:

None assigned. Not a hazardous substance/mixture under GHS criteria.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/eye protection.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501: Dispose of contents/container in accordance with local/national regulations.

2.3 Other hazards which do not result in classification:

A long-established, low-hazard inorganic filler with an extensive history of use as a flame retardant, filler and pharmaceutical antacid raw material. Fine powder may cause mechanical irritation of the eyes and respiratory tract on prolonged/repeated exposure, as with any finely divided inert mineral solid.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: ALUMINIUM HYDROXIDE
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 21645-51-2	ALUMINIUM HYDROXIDE — Not classified	≥ 98% (typical commercial grade)

To obtain more information on the hazards of the substance, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

In general this product does not cause particular health hazards when handled according to this safety data sheet and label instructions. If symptoms persist or occur, seek medical attention and show this SDS.

By inhalation:

In case of excessive inhalation of dust, remove the person affected to fresh air and keep at rest. Seek medical attention if irritation or discomfort persists.

By skin contact:

Remove contaminated clothing. Wash affected skin with plenty of soap and water. Seek medical advice if irritation develops or persists.

By eye contact:

Rinse immediately with plenty of water, occasionally lifting the upper and lower eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse mouth with water. Do not induce vomiting. If large quantities are swallowed or if discomfort occurs, seek medical advice.

4.2 Most important symptoms/effects, acute and delayed:

No significant symptoms/effects are expected under normal conditions of use. Mechanical irritation of eyes, skin or respiratory tract may occur from dust contact, as with any finely divided solid.

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

Not relevant. Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Water spray/fog, foam, dry chemical powder, carbon dioxide (CO2) – select according to the surrounding fire.
Unsuitable: None known. Avoid high-pressure water jets that may disperse fine dust/create a dust cloud.

5.2 Specific hazards arising from the chemical:

Not classified as flammable. As with most finely divided organic/inorganic powders, accumulated dust dispersed in air in sufficient concentration and in the presence of an ignition source may represent a potential dust explosion hazard. Combustion may generate carbon monoxide, carbon dioxide and other decomposition products.

5.3 Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and full protective clothing in case of fire. Cool fire-exposed containers with water spray. Avoid generating dust clouds near ignition sources.

Additional provisions:

Contain fire-fighting water for appropriate disposal; avoid uncontrolled discharge into drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid generating and inhaling dust. Use personal protective equipment as described in Section 8. Ventilate the area. Avoid contact with skin and eyes.

For emergency responders:

Wear appropriate PPE as in Section 8. No special measures beyond routine good industrial hygiene practice are required.

6.2 Environmental precautions:

Avoid release of large quantities to drains, soil or surface water. Prevent further leakage/spillage if safe to do so.

6.3 Methods and materials for containment and cleaning up:

Sweep up or vacuum (using dust-tight equipment) and place in a suitable, labelled container for disposal or reuse. Avoid dry sweeping that raises dust where practical; dampen lightly if dust control is required. Wash the spill area with water after removing material.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Handle in accordance with good industrial hygiene and safety practice. Avoid generating and breathing dust. Minimise dust generation during bulk handling, bagging and weighing operations.

B. Technical recommendations for the prevention of fires and explosions:

Minimise dust generation and accumulation. Control potential sources of ignition (static discharge, open flame, sparks) where significant dust clouds may form. Use properly earthed/bonded equipment for bulk handling.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke while handling the product. Wash hands and exposed skin before breaks and after work.

D. Technical recommendations to prevent environmental risks:

Avoid release to the environment. Keep containers closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Storage temperature	Ambient (15–35°C recommended)
Shelf life	Typical value – refer to current specification sheet

B. General conditions for storage:

Store in a cool, dry, well-ventilated place in tightly closed original containers, away from direct sunlight, moisture and incompatible materials. Keep away from strong oxidisers and strong acids/alkalis unless the material itself is one of these.

7.3 Specific end use(s):

See Section 1.2. Except for the instructions already specified, no special recommendation beyond standard industrial practice is required.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

No substance-specific occupational exposure limit (OEL) has been established in India for this product. As a general dust/particulate not otherwise classified, the following general nuisance-dust limits are commonly applied as guidance:

Identification	Occupational Exposure Limit Type	Value
Particulates (not otherwise classified)	Total dust, TWA (8 hrs)	10 mg/m³ (general guidance value)
	Respirable fraction, TWA (8 hrs)	3 mg/m³ (general guidance value)

8.2 Appropriate engineering controls:

Use local exhaust ventilation or general dilution ventilation where dust may be generated, to keep airborne concentrations below applicable exposure limits.

B. Respiratory protection:

Not normally required under good ventilation. Where dust levels are elevated, use a particulate (dust) filtering respirator (e.g. FFP1/FFP2 type).

C. Specific protection for the hands:

Protective gloves recommended for prolonged or repeated contact (e.g. nitrile or PVC).

D. Eye and face protection:

Safety glasses or goggles recommended where dust generation is likely.

E. Bodily protection:

Standard industrial workwear; dust-protective coveralls where high dust levels are generated.

F. Additional emergency measures:

Eyewash station and washing facilities should be available in the work area.

Environmental exposure controls:

Avoid uncontrolled release to the environment. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (fine powder)

Appearance	Solid (fine powder)
Color	White
Odor	Odourless
Odour threshold	Not established
Volatility	
Boiling point at atmospheric pressure	Not applicable (solid)
Vapour pressure at 20°C	Not applicable (solid)
Evaporation rate at 20°C	Not applicable
Product Description	
Density / Relative density at 20°C	Approx. 2.3 – 2.4 g/cm³ (Typical value – refer to current specification sheet)
Bulk density	Typical value – refer to current specification sheet (grade dependent)
pH (in aqueous suspension/solution, as applicable)	8.0 – 10.5 (10% aqueous suspension, typical)
Solubility in water at 20°C	Practically insoluble in water; soluble in strong acids and strong alkalis (amphoteric)
Partition coefficient n-octanol/water	Not established
Decomposition temperature	Typical value – refer to current specification sheet
Melting point/freezing point	Non-applicable – decomposes on heating (loses water of hydration above approx. 180–300°C) rather than melting
Flammability	
Flash Point	Not applicable (solid)
Flammability (solid, gas)	Not classified as flammable solid
Autoignition temperature	Not established
Lower / Upper flammability limit	Not applicable
Particle Characteristics	
Particle size / form	Fine powder, grades ranging from ground/precipitated to surface-treated; Typical value – refer to current specification sheet

Values above are typical for the commercial grade supplied and are not to be used as product specification. Refer to the current specification sheet for guaranteed values.

9.2 Other information:

Explosive properties	Not classified as explosive
Oxidising properties	Not classified as oxidising
Corrosive to metals	Not corrosive to metals
Heat of combustion	Not established
Self-heating	Not classified as self-heating

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
Amphoteric: reacts with strong acids to form the corresponding aluminium salt, and with strong alkalis to form soluble aluminates. Thermally decomposes above approx. 180–300°C, releasing water vapour (this endothermic decomposition is the basis of its flame-retardant action). Stable under normal conditions of storage and use.

10.2 Chemical stability:
Chemically stable under the recommended conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:
No hazardous reactions are known or expected under normal conditions of storage and use.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid prolonged exposure to high temperature	Avoid prolonged direct exposure	Avoid prolonged exposure to high humidity/moisture

10.5 Incompatible materials:
Strong oxidising agents and strong mineral acids/alkalis (unless the product itself is one of these), as a general precaution for storage compatibility.

10.6 Hazardous decomposition products:
None expected under normal conditions of storage and use. Thermal decomposition at high temperature (fire conditions) may generate oxides of carbon and, depending on the specific substance, other combustion products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
Aluminium Hydroxide is a long-established, widely used inorganic filler and pharmaceutical raw material (used as an antacid active and vaccine adjuvant base) with an extensive safety history. Based on this history and available data, it does not meet GHS classification criteria for acute toxicity, irritation, sensitisation or CMR effects.

A. Ingestion (acute effect):
Low acute oral toxicity expected based on available data; classification criteria for acute toxicity are not met.

B. Inhalation (acute effect):
Dust may cause mechanical irritation of the respiratory tract. Classification criteria for acute inhalation toxicity are not met based on available data.

C. Contact with skin and eyes (acute effect):
Not expected to be irritating under normal conditions of use; may cause transient mechanical irritation from dust contact.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. Not listed by IARC, OSHA or NTP as a carcinogen.

E. Sensitizing effects:
Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:
Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure:
Classification criteria are not met based on available data.

H. Aspiration hazard:
Not relevant (solid).

Product-specific toxicological information:

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Identification	Acute Toxicity	Genus
ALUMINIUM HYDROXIDE CAS: 21645-51-2	LD50 oral: >2000 mg/kg (Typical value – refer to current specification sheet)	Rat
	LD50 dermal: >2000 mg/kg (Typical value – refer to current specification sheet)	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under GHS criteria. The substance is of very low water solubility and is not expected to be bioavailable to aquatic organisms in significant amounts.

12.1 Toxicity:
No specific aquatic toxicity data has been generated for this product. Based on its composition and intended uses, it is not expected to present a significant hazard to aquatic organisms under normal conditions of use.

12.2 Persistence and degradability:
Not readily biodegradable by standard test criteria; however the substance is of low mobility and low toxicity. No data available for ready biodegradability.

12.3 Bioaccumulative potential:
Not expected to bioaccumulate significantly based on its physicochemical properties. No specific data available.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not established	Not relevant	Low mobility (solid, low water solubility)	Low mobility

12.5 Results of PBT and vPvB assessment:
Not classified as PBT or vPvB based on available data.

12.6 Other adverse effects:
Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:
Dispose of in accordance with local, state and national regulations. Where possible, arrange for recycling/reuse. Do not discharge to drains, soil or water courses. Empty containers may retain product residue; handle with the same precautions as the full product and dispose of/recycle in accordance with local regulations.
Refer to national and local regulations on waste management, including the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, as applicable.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not assigned
14.2 UN proper shipping name	Non-applicable – not a regulated dangerous good
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Not a regulated dangerous good. Physico-chemical properties: see section 9.
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	Not assigned
14.2 UN proper shipping name	Non-applicable – not a regulated dangerous good
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-hazardous for transport. Not regulated as a dangerous good under ADR/RID, IMDG or IATA/ICAO.
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not assigned
14.2 UN proper shipping name	Non-applicable – not a regulated dangerous good
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-hazardous for transport. Not regulated as a dangerous good under ADR/RID, IMDG or IATA/ICAO.
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:
It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:
Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:
This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:
Not applicable – no GHS hazard statements apply to this product based on available data.
Any phrases indicated in sections 2 or 3 do not refer to the product itself; they are present merely for informative purposes and refer to individual components, if any, which may appear in section 3.

Advice related to training:
Minimal training is recommended to familiarise staff handling this product with good industrial hygiene practice, dust control and the contents of this safety data sheet and the product label.

Principal bibliographical sources:

Published GHS classification and safety data for this CAS number from recognised chemical safety reference databases; The United Nations Economic Commission for Europe (UNECE).

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent, very Bioaccumulative

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET