



Product Information

Aluminum hydroxide hydrate

Product Number **A 1577**

Store at Room Temperature

Product Description

Molecular Formula: $\text{Al}(\text{OH})_3$ (anhydrous basis)¹

CAS Number: 1330-44-5

Synonyms: aluminum hydrate; aluminum trihydrate; hydrated alumina

Aluminum hydroxide is an inorganic reagent that is utilized in a wide variety of applications. It has been used as an adsorbent, an emulsifier, an ion-exchanger, and as a mordant in dyeing. Other applications include the manufacture of glass, fire clay, paper, pottery, and printing inks.¹ In immunology, aluminum hydroxide has been used to prepare an adjuvant with potassium alum.² A review of the structure and properties aluminum-containing adjuvants has been published.³

A protective *Leptospira borgpetersenii* vaccine using aluminum hydroxide as an adjuvant has been utilized to induce antigen-specific proliferative responses by peripheral blood mononuclear cells (PBMC) from vaccinated cattle.⁴ The use of aluminum hydroxide to induce immunity to *Helicobacter* infection in a mouse model of *Helicobacter* infection has been described.⁵

A kinetic study of acid neutralization by aluminum hydroxide gel has been reported.⁶ The microencapsulation of aluminum hydroxide with poly-methylmethacrylate has been investigated.⁷

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

The product is soluble in 50% HCl (100 mg/ml), yielding a clear, colorless solution. It is soluble in alkaline aqueous solutions, or strong acids such as H_2SO_4 . The product is practically insoluble in water, but will form gels on extended contact with water. It absorbs acids and carbon dioxide.¹

References

1. The Merck Index, 12th ed., Entry# 355.
2. Antibodies: A Laboratory Manual, Harlow, E., and Lane, D., eds., Cold Spring Harbor Laboratory (Cold Spring Harbor, NY: 1988), p. 99.
3. Hem, S. L., and White, J. L., Structure and properties of aluminum-containing adjuvants. *Pharm. Biotechnol.*, **6**, 249-276 (1995).
4. Naiman, B. M., et al., Protective killed *Leptospira borgpetersenii* vaccine induces potent Th1 immunity comprising responses by CD4 and $\gamma\delta$ T lymphocytes. *Infect. Immun.*, **69**(12), 7550-7558 (2001).
5. Gottwein, J. M., et al., Protective anti-*Helicobacter* immunity is induced with aluminum hydroxide or complete Freund's adjuvant by systemic immunization. *J. Infect. Dis.*, **184**(3), 308-314 (2001).
6. Nail, S. L., et al., Kinetics of acid neutralization by aluminum hydroxide gel. *J. Pharm. Sci.*, **65**(8), 1255-1258 (1976).
7. Geurts, F. L., et al., Encapsulation of aluminium hydroxide fillers with poly-methyl-methacrylate. *J. Microencapsul.*, **18**(4), 533-543 (2001).

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