



Aluminum Adjuvants

PRODUCT PROFILE

Characteristics

Rehydragel® and Rehydraphos® adsorbent aluminum hydroxide and phosphorus gels have been used for many years as adjuvants in veterinary and human vaccines as well as the human biological field. These highly purified aluminum hydroxide gels provide high protein adsorption when used as matrices or carriers for veterinary or human antitoxins. Rehydragel adjuvants are based on crystalline aluminum oxyhydroxide, known mineralogically as boehmite.

Rehydragel® are highly effective in vaccines

proteins. They have a positive charge at physiological pH (7.4) and a point of zero charge at 9 to 12. They are hydrated gels containing crystalline particles with a large surface area (about 525 m²/g). Their Al₂O₃ content ranges from 2% to 10%. The Rehydragel® line includes products with high Al₂O₃ concentration for economy, as well as highly specialized grades. Rehydraphos® is highly adsorptive for positively and negatively charged antigens due to the phosphate & hydroxide ligands along with the high surface area. The AL:P ratio is 1:1.

Specifications by Grade

| | CG | LV | HPA | HS | SP | Rehydraphos |
|---|------------|----------------|----------------|----------------|----------------|---|
| Aluminum Hydroxide (Al₂O₃), % | 8.5 – 10.5 | 1.8 – 2.2 | 1.8 – 2.2 | 1.8 – 2.2 | 1.8 – 2.2 | 2.3 – 3.4 (AlPO ₄ based on Al) |
| Protein Binding Capacity, mg BSA/ mg Al₂O₃ | 1.0 | 1.5 | 2.5 | 0.9 | 0.90 | 0.60 (mg Lysozyme / mg Al ₂ O ₃) |
| Point of Zero Charge | 10.5 | 11.6 | 12.1 | 9.4 | 9.4 | ~5.2 |
| Sodium (Na), % max | - | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 |
| Chloride (Cl), % max | 0.07 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 |
| Sulfate (SO₄), % | 0.03 | <0.5 | <0.5 | <0.5 | <0.5 | 0.1 |
| Viscosity | Gel-like | 1000 cps max | Thixotropic | 1300 cps max | 1300 cps max | |
| pH | 7.0 – 8.0 | 5.8 – 6.8 | 5.5 – 6.5 | 6.0 – 8.0 | 6.0 – 8.0 | 5.5 – 8.5 |
| Sedimentation @ 5 mg/mL | suspension | <20% in 24 hrs | <20% in 24 hrs | <20% in 24 hrs | <20% in 24 hrs | <20% in 24 hrs |

Benefits & Applications

Benefits

- ✚ Excellent binding of acidic proteins
- ✚ Customized Al₂O₃ level, rheological properties, and point of zero charge
- ✚ Independent studies show higher protein adsorption than competitive material

Human & Animal Applications

- ✚ Bacteria vaccines for large animals
- ✚ Rabies vaccine for companion animals
- ✚ Poultry vaccines
- ✚ HPV, Pneumococcal, Influenza, HIV, among other human vaccines
- ✚ Blood plasma protein separation
- ✚ Pharmaceutical gels for topical use



Grades

- ✚ Rehydragel® CG - sterilized gel often diluted to form suspensions having relatively low Al₂O₃ concentrations or used in vaccines that need high adjuvant levels. It is highly gelatinous, nearly translucent, and non-reactive making it effective for topical applications.
- ✚ Rehydragel® LV - specially compounded for use as a fluid adjuvant. It has low oxide content and is carefully controlled for Al₂O₃ content and protein binding capacity. It has a lower viscosity than competing adjuvants, which makes it easier to process and handle.
- ✚ Rehydragel® HPA - maximum protein binding and point of zero charge at pH 12. It is sterile, low-oxide, thixotropic gel containing sub-micron particles that can boost protein adsorption compared to conventional adjuvants.
- ✚ Rehydragel® HS – lower binding helps uptake of antigens by T-cells in this subject. HS is designed specifically for those vaccines where low binding is required.
- ✚ Rehydragel® HS 1.3 – Rehydragel® HS diluted to 1.3% Al₂O₃
- ✚ Rehydragel® SP and Rehydragel® PM – Designed for use in buffer systems that are incompatible with Rehydragel LV.
- ✚ Rehydragel® AB – superior aluminum hydroxide for blood plasma separation
- ✚ Rehydraphos - amorphous aluminum hydroxyphosphate having an acidic isoelectric point. This property combined with its high surface area gives it a high adsorptive capacity for basic or positively charged antigens. The Al:P ratio is 1:1.

We can recommend which grade is the best match for your application. Custom grades available upon request.

PACKAGING OPTIONS

- ✚ 25 kg pail
- ✚ 5 kg sterile can
- ✚ 500 mL sterile glass container

MANUFACTURING & SHIPPING LOCATION

Berkeley Heights, NJ USA

Shelf Life

Rehydragel® & Rehydraphos® have a shelf life of 2 years at which point the stability and sterility should be reevaluated for 1 additional year of shelf life. Please contact Chemtrade for retesting and recertification.

Storage Conditions

Rehydragel® adjuvants should be stored at or below room temperature. They should never be allowed to freeze, because this destroys their lattice structure and unique adsorbent properties.

Product Safety Information

As with any chemical, Rehydragel® adjuvants require care in handling. Anyone responsible for the procurement, use or disposal of this product should familiarize himself and those handling the product with the appropriate safety and handling precautions. This information is available in the Safety Data Sheet, which may be obtained by contacting our Select Specialties Sales and Marketing group (see box below).

In the event of an emergency with these products, call the 24 hour Emergency Number:
US Only: (CHEMTREC) (800) 424-9300
Canada Only: (CANUTEC) (613) 996-6666

CORPORATE HEADQUARTERS

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