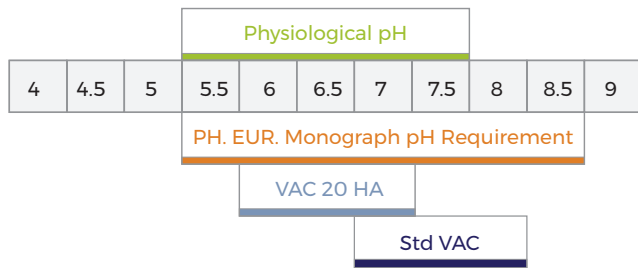


Vaccine Adjuvants VAC 20 HA

High Adsorption Grade for Animal Health

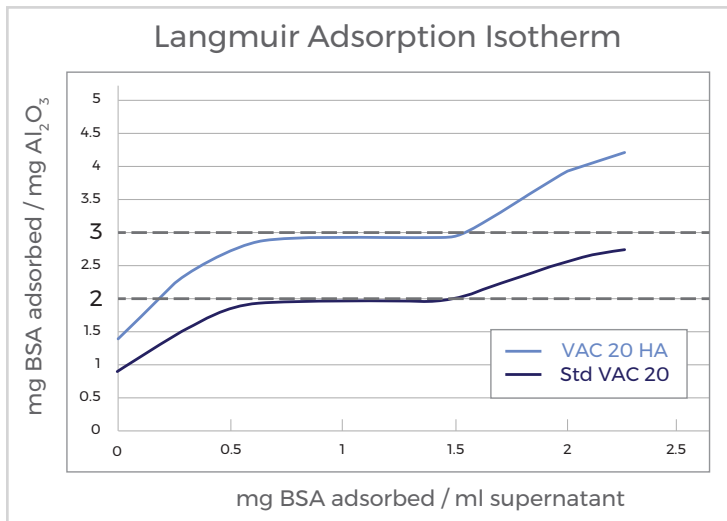
SPI Pharma has extensive experience and knowledge of aluminum hydroxide chemistry, with more than 70 years for antacid forms and more than 20 years for VAC gels as a vaccine adjuvant. Continuing its focus on innovation, we have developed a high protein adsorption grade of vaccine adjuvant. VAC 20 HA has more than 50% more adsorption capacity than standard VAC, reducing redness and swelling at the injection site.



The vaccine adjuvant manufacturing process used by SPI Pharma has been developed and optimized to include a gel, VAC 20 HA, that offers higher protein adsorption capacity with a finer particle size (average particle size 5 µm) and a narrower pH range (6.0-7.0). These characteristics make VAC 20 HA a high performance adjuvant compared to other regular adjuvants.

Our VAC 20 HA grade has a 2% Assay Al₂O₃%. SPI can customize the assay level with this improved adsorption capacity. This grade is validated at our facility in France, which is FDA and ANSM approved.

Figure 1: VAC 20 HA Has 50% More Adsorption Capacity Than the Standard VAC 20 Grade



Aluminium Hydroxide Adjuvants surface charge is pH-dependent.

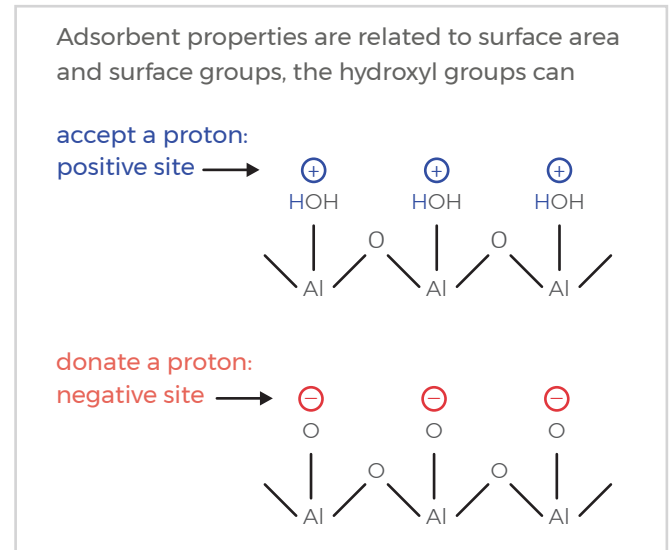
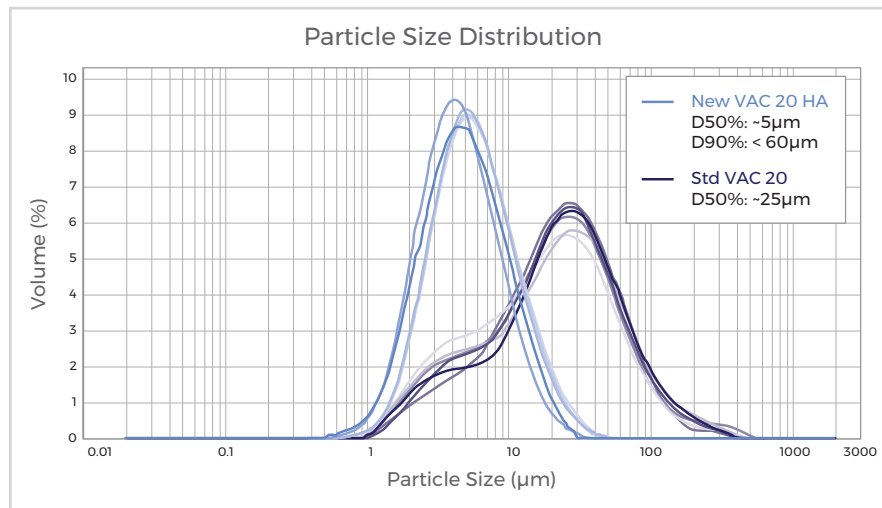


Figure 2: Schematic of the structure of the gel. When the surface of the aluminum oxyhydroxide is positive, it attracts negatively charged antigens. Adsorption capacity is determined by surface area and surface charge from the hydroxyl groups

Figure 3: VAC 20 HA has a finer particle size that reduces inflammation at the point of injection. The finer PSD means more surface area for more adsorption capacity.



Vaccine Adjuvants

Aluminum Hydroxide Gel Grades for Animal Health

Proven Technology

Reliable Supply

**Less Antigen
With Right Adjuvant**

- Adsorb Negatively Charged Antigens**
- Slows Release of Inactivated Virus or Bacteria**
- Activate and Stimulate Immune Response**

Track Record & Quality

- Decades in Industry Supplying Major Vaccine Producers**
- Manufactured under cGMP**
- Ph. Eur. Monograph Compliant**

Innovation With VAC 20 HA

- 50% Added Higher Adsorption Capacity than Standard VAC**
- Finer Particle Size & Narrower pH Range**

Reduce Redness & Swelling

[SPI Pharma](#)

[@spipharma](#)

salesinfo@spipharma.com

www.spipharma.com

[@spipharma_real](#)

[SPI Pharma](#)



All information and statements given in this brochure are believed to be accurate at the time of publication. However, neither SPI Pharma nor any of their affiliates make any representations or warranty with respect thereto, including, but not limit to, any results obtained in the processing of the products by customers or any third party. All information and statements are intended for persons having the required skill and know-how and do not relieve the customer or user from verifying the suitability of information and statements given for a specific purpose prior to use of products. It is entirely the obligation of the customer or user to comply with applicable laws and regulations, and also with all patent or other intellectual property rights of third parties.

SPI PHARMA EXPRESSLY DISCLAIMS ANY REPRESENTATIONS OR WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, CURRENCY, COMPLETENESS AND/OR THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF ANY INFORMATION CONTAINED IN THIS BROCHURE AND/OR ANY PRODUCT DESCRIBED OR PROMOTED IN THIS BROCHURE, INCLUDING WARRANTIES WITH RESPECT TO INFRINGEMENT OF ANY PATENT, COPYRIGHT, OR OTHER RIGHTS OF A THIRD PARTY. We reserve the right to change product specification and not specified properties of the products without prior notice.