

SDA 701 TECHNICAL BULLETIN

SDA 701

Particulate Polymer Gel

High-Presentation Dual-Phase Aqueous Adjuvant

SDA 701 is an aqueous adjuvant using polyacrylamide gel particles (P/O) to replace traditional water-in-oil (W/O) emulsions for antigen encapsulation and slow release, while avoiding adverse reactions associated with oil emulsions. It contains 100% Carbopol 934P, lightly cross-linked, esterified with ethyl acetate, plus $\leq 0.5\%$ PLURONIC–mannitol emulsifier. SDA 701 contains no animal derived components. It causes zero local tissue damage and is completely phagocytosed and cleared by macrophages with zero residue.

SDA 701 provides the encapsulation and slow release benefits of W/O emulsions, combined with the strong antigen presentation characteristics of O/W systems, while remaining fully aqueous. It induces strong and long lasting immunity. Vaccines formulated with SDA 701 are stable, highly tolerated, and easy to inject, with no local or systemic adverse reactions. Appearance is essentially transparent with slight bluish opalescence.

If 701A produces excessive immune activation (cytokine storm) in mice, milder versions 701B or 701C may be used. For extended slow release emphasis, 702 is recommended. SDA 701 is uniquely capable of maintaining bacterial antigens uniformly stable at high temperatures.

1. VACCINE PREPARATION

Typical mixing ratio (by weight):

Antigen : Adjuvant = 1 : 4–9

2. EMULSION CHARACTERISTICS

(Final product requires sterility; preservative may be added)

Format: Fully aqueous polymer nanoparticle suspension (P/O)

Stability:

- 4°C → ≥ 12 months
- 25°C → ≥ 2 months
- 37°C → ~15 days

Viscosity (25°C): ~40 mPa·s

Conductivity: ~18 $\mu\text{S}/\text{cm}$

Particle size: 100–200 nm

3. IMMUNE RESPONSE

SDA 701 enhances vaccine efficacy by inducing strong and durable immunity. In large animal models, it stimulates robust protective immune responses. Recommended for bacterial, viral, mycoplasma, parasitic, or recombinant (subunit) antigens.

4. TARGET SPECIES

SDA 701 is used in vaccines for valuable animals, cattle, camels, swine, sheep, and poultry. Especially suitable for pigs sensitive to W/O emulsions, and for poultry vaccines that rely on slow release stimulation instead of oil emulsions.

5. POTENCY & TOLERANCE

SDA 701 achieves an excellent balance between efficacy and safety, enabling long lasting protective immunity. It maintains protection even when injection dosage is reduced or diluted.

6. SAFETY & REGULATORY

Toxicological evaluations performed by SDA BIO (Berlin test, Oral LD50, IP LD50, eye irritation, skin irritation, pyrogenicity) confirm excellent safety and tolerance. Antigen medium characteristics are critical to final vaccine performance; each development team must verify safety and efficacy according to local market standards.

Notes:

- SDA 701 is a semi fluid aqueous concentrate. No strict temperature or mixing speed requirements, but high shear homogenization should be avoided.
- Recommended mixing ratio is 1:4–1:9 by weight; over dilution reduces encapsulation efficiency.

For more information or vaccine formulation guidance:

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