SAJA POLYMER

Technical Data Sheet (TDS)

EP938 / EP935

Associative Alkali-Swellable Thickeners (HASE)

Product Description

> The EP938 and EP935 series represent high-performance associative alkali-swellable thickeners (HASE) engineered to deliver exceptional leveling efficiency, premium viscosity build, and robust seasonal consistency stabilization. These modifiers generate excellent static resistance combined with outstanding high-shear build, substantially increasing the applied film build, hiding power, and ultimate leveling profile of roller, brush, and troweled water-based coatings.

Section I: Physical Indicators*

Properties	EP938 Values	EP935 Values	Unit	Test Methods
Appearance	Milky white emulsion	Milky white emulsion	—	Visual inspection
Solid Content	30 ± 1	30 ± 1	wt%	GB/T 20623-2006
pH Margins	3.5 - 4.0	3.5 - 4.0	—	GB/T 20623-2006
Base Viscosity	< 100	< 100	CPS	Brookfield DV-S, 2# spindle, 30rpm, 25°C

*Note: *The physical tracking criteria documented above correspond strictly to standard typical research laboratory results and are not intended as rigid commercial specifications. For official batch compliance metrics, please consult the formal Certificate of Analysis (COA).*

Section II: Laboratory Evaluation Data

Comprehensive analytical testing logs track the thickeners' rheological behavior, aging properties, and stability profiles across diverse blended medium environments.

2.1 Rheological and Stability Performance in Blended Emulsions

Testing Matrix Guidelines: Modifier Emulsion / (918 Resin Emulsion at 50% + Pure Deionized Water at 50% + Neutralizing Ammonia Water adjusted to pH margins of 7.5 - 8.0) + Formulation Defoamer (0.2g). Total active modifier dosing is set at 0.6% for EP938 and 0.92% for EP935.

- **Stormer Viscosity Profile (KU Consistency Stability Tracking):**
  - **EP938 Grade:** Demonstrates an initial baseline where the comparative viscosity is 14.9% higher than EP935. Viscosity increases by +1.93% at the 3-day milestone, +2.94% at 7 days, and stabilizes with a total variance of +4.46% at the 15-day tracking endpoint.
  - **EP935 Grade:** Viscosity increases by +2.79% at the 3-day tracking interval, +7.68% at 7 days, and settles at +13.27% at the 15-day evaluation endpoint.
- **High-Shear Brookfield Viscosity (4# Spindle monitored at 60 rpm; unit: mPa·s):**
  - **EP938 Grade:** Baseline high-shear viscosity surpasses EP935 by 305%. Viscosity growth trends register +12.70% at 3 days, +53.97% at 7 days, and settle at +25.40% at the 15-day storage endpoint.
  - **EP935 Grade:** Viscosity growth shifts by -12.00% at 3 days, returns to a net 0.00% variation at 7 days, and completes the cycle with a +12.00% increase at 15 days.
- **Low-Shear Brookfield Viscosity (4# Spindle monitored at 6 rpm; unit: $\times 10^4$ mPa·s):**
  - **EP938 Grade:** Baseline low-shear viscosity surpasses EP935 by 708%. Viscosity variations register at -31.48% at the 3-day tracking mark, -27.78% at 7 days, and stabilize at -29.63% after 15 days.
  - **EP935 Grade:** Viscosity growth trends build steadily at +18.00% at 3 days, +64.00% at 7 days, and maintain a plateau of +64.00% at the 15-day evaluation milestone.

2.2 Rheological and Stability Performance in Pure Aqueous Solutions

Testing Matrix Guidelines: EP938 Solution Matrix (4% thickener emulsion + 96% water) vs.

EP935 Solution Matrix (3% thickener emulsion + 97% water). Both systems are adjusted with neutralizing ammonia water to standard pH parameters of 7.5 - 8.0.

- **Stormer Viscosity Profile (KU Consistency Stability Tracking):**
  - **EP938 Grade:** Initial baseline KU viscosity is 38.82% higher than EP935. Thickening growth shows +16.10% at 3 days, +19.49% at 7 days, and stabilizes at +19.49% at the 15-day tracking mark.
  - **EP935 Grade:** Thickening growth tracks at +9.53% at 3 days, +12.00% at 7 days, and closes at +13.76% at the 15-day storage checkpoint.
- **High-Shear Brookfield Viscosity Stability (4# Spindle monitored at 60 rpm; unit: mPa·s):**
  - **EP938 Grade:** Growth increases by +4.11% at 3 days, +12.33% at 7 days, and levels off at +12.33% after 15 days.
  - **EP935 Grade:** Growth shifts upward by +11.11% at 3 days, +38.89% at 7 days, and hits a terminal variation of +50.00% at 15 days.
- **Low-Shear Brookfield Viscosity Stability (4# Spindle monitored at 6 rpm; unit: $\times 10^4$ mPa·s):**
  - **EP938 Grade:** Initial low-shear profile tracks higher than EP935 by 152%. Growth levels at +3.96% at 3 days, +29.21% at 7 days, and increases to +73.27% at 15 days.
  - **EP935 Grade:** Growth registers a rise of +24.00% at 3 days, spikes to +228.00% at 7 days, and establishes a plateau of +108.00% at 15 days.

2.3 Evaluation and Viscosity Comparisons inside Coating Formulations

Standard Architectural Paint Test Recipe: Water (240g), Hydroxyethyl Cellulose HEC (1g), Ammonia (1.5g), Ethylene Glycol (20g), Wetting Surfactant (1g), Anionic Dispersant (6g), Processing Defoamer (1.5g), Titanium Dioxide (120g), Kaolin Clay (100g), Ground Calcium Carbonate (260g), Deionized Water (29.5g), Coalescing Co-solvent (14g), Finishing Defoamer (1.5g), Acrylic Emulsion Binder (200g), Preservative Agent (1.5g), and HASE Thickener Solution at a 1:1 water dilution ratio (2.5g).

- **Long-Term Coating Storage Observations:** Following continuous ambient room temperature warehouse monitoring for 10 days and up to a full 1-month evaluation block, coating formulations utilizing EP938 display excellent homogeneity with zero structural layer separation, zero syneresis stratification, and a stable surface appearance.
- **Viscosity Shift and Aging Metrics (EP938 vs. Commercial Benchmark Product):**

- **EP938 Compound:** Registers an initial coating viscosity of 112.9 KU. After 10 days, the consistency trends to 133.7 KU (a change of +20.8 KU / +18.42%). At the 30-day interval, the value stabilizes at 133.8 KU, showing a total long-term drift of only +20.9 KU (+18.51%).
- **Commercial Benchmark:** Starts at an initial viscosity of 108.1 KU. At 10 days, the value shifts to 125.1 KU (a change of +17.0 KU / +15.73%). However, by day 30, it exhibits significant post-thickening drift, rising to 137.6 KU (a substantial net variance of +29.5 KU / +27.28%).

Storage Parameters

This emulsion must be kept inside original, fully closed containers protected from direct sunlight, in a cool and dry environment. Ensure storage temperatures are maintained within the safe margin of 5°C to 35°C. The standard shelf life is six months counting from the packaging date. Should the material exceed this storage period, a thorough performance verification is highly advised before manufacturing. Once unsealed, passing the raw fluid through an appropriate screen filter prior to formulation processing is recommended, and the remaining material should be used up promptly.

Disclaimer

Shandong Sanjia Polymer Material Co., Ltd.