

0810

Hydrophobically Modified Acrylic Thickener

Product Description

0810 is a hydrophobically modified acrylic thickener designed to deliver outstanding performance profiles. It provides high gloss and excellent relative water resistance while significantly improving coating atomization during spray applications. It balances highly efficient leveling capabilities with superior sag resistance, preserving the original appearance and clear transparency of the formulation system without causing film whitening.

Physical Specifications*

Properties	Value	Unit	Test Method
Appearance	Milky white emulsion	—	Visual (目测)
Solid Content	25 ± 1	wt%	GB/T 20623-2006
pH	3.5 - 4.0	—	GB/T 20623-2006
Viscosity	< 100	CPS	Brookfield DV-S, 2#, 30rpm, 25°C

*Note: *The properties listed above represent typical results only and should not be construed as product specifications. Please refer to the specific Certificate of Analysis (COA) for official specifications.*

Performance Evaluation Report

Comprehensive investigations detailing the thickener's rheological profiles, storage variations, and multi-component formulation media interactions are reported below.

Part I: Performance in Blended Emulsions (增稠效率、稳定性与流变特性)

Testing Recipe: Thickener Emulsion / (918 Emulsion 50% + Pure Water 50% + Ammonia Water adjusted to pH 7.5 - 8.0) + Defoamer 0.2g = 1.3% total dosage.

• Stormer Viscosity (KU) Curve Tracking (图一):

- **Grade 0810:** Day 1: 87.2 KU → Day 3: 92.3 KU (+5.37%) → Day 7: 93.0 KU (+6.16%) → Day 15: 97.3 KU (+11.07%).
- **Grade 0810-Z14A:** Day 1: 87.2 KU → Day 3: 90.0 KU (+3.21%) → Day 7: 90.2 KU (+3.44%) → Day 15: 95.3 KU (+9.29%).
- **Grade 0810-Z14B:** Day 1: 102.0 KU → Day 3: 104.9 KU (+2.84%) → Day 7: 107.8 KU (+5.69%) → Day 15: 114.3 KU (+12.06%).

• High-Shear Rotational Viscosity Tracking (4# Spindle, 60 rpm; unit: mPa·s / 图二):

- **Grade 0810:** Day 1: 3500 mPa·s → Day 3: 4300 mPa·s (+22.86%) → Day 7: 4300 mPa·s (+22.86%) → Day 15: 6300 mPa·s (+80.00%).
- **Grade 0810-Z14A:** Day 1: 3000 mPa·s → Day 3: 3600 mPa·s (+20.00%) → Day 7: 3500 mPa·s (+16.67%) → Day 15: 5200 mPa·s (+73.33%).
- **Grade 0810-Z14B:** Day 1: 7300 mPa·s → Day 3: 8200 mPa·s (+12.33%) → Day 7: 8700 mPa·s (+19.18%) → Day 15: 8700 mPa·s (+19.18%).

• Low-Shear Rotational Viscosity Tracking (4# Spindle, 6 rpm; unit: $\times 10^4$ mPa·s / 图三):

- **Grade 0810:** Day 1: 1.48 → Day 3: 1.96 (+32.43%) → Day 7: 1.97 (+33.11%) → Day 15: 4.52 (+205.41%).
- **Grade 0810-Z14A:** Day 1: 1.10 → Day 3: 1.31 (+19.09%) → Day 7: 1.75 (+59.09%) → Day 15: 4.09 (+271.82%).
- **Grade 0810-Z14B:** Day 1: 3.77 → Day 3: 3.78 (+0.27%) → Day 7: 3.78 (+0.27%) → Day 15: 4.75 (+25.99%).

Part II: Performance in 6% Aqueous Solutions (兑水增稠曲线)

Testing Recipe: Thickener Emulsion 6% + Pure Water 94% + Ammonia Water adjusted to pH 7.5 - 8.0.

- **Stormer Viscosity (KU) Stability (图四):**

- **Grade 0810:** Day 1: 88.1 KU → Day 3: 94.0 KU (+6.70%) → Day 7: 94.2 KU (+6.92%) → Day 15: 94.5 KU (+7.26%).
- **Grade 0810-Z14A:** Day 1: 82.9 KU → Day 3: 91.3 KU (+10.13%) → Day 7: 90.6 KU (+9.29%) → Day 15: 92.1 KU (+11.10%).
- **Grade 0810-Z14B:** Day 1: 99.9 KU → Day 3: 111.9 KU (+12.01%) → Day 7: 111.6 KU (+11.71%) → Day 15: 112.1 KU (+12.21%).

- **Rotational Viscosity at 60 rpm (4# Spindle; unit: mPa·s / 图五):**

- **Grade 0810:** Day 1: 3300 mPa·s → Day 3: 4100 mPa·s (+24.24%) → Day 7: 4000 mPa·s (+21.21%) → Day 15: 4000 mPa·s (+21.21%).
- **Grade 0810-Z14A:** Day 1: 2200 mPa·s → Day 3: 2500 mPa·s (+13.64%) → Day 7: 2800 mPa·s (+27.27%) → Day 15: 2800 mPa·s (+27.27%).
- **Grade 0810-Z14B:** Day 1: 4700 mPa·s → Day 3: 5600 mPa·s (+19.15%) → Day 7: 5500 mPa·s (+17.02%) → Day 15: 5500 mPa·s (+17.02%).

- **Low-Shear Viscosity at 6 rpm (4# Spindle; unit: $\times 10^4$ mPa·s / 图六):**

- **Grade 0810:** Day 1: 0.94 → Day 3: 1.20 (+26.66%) → Day 7: 1.00 (+6.38%) → Day 15: 1.50 (+59.57%).
- **Grade 0810-Z14A:** Day 1: 0.83 → Day 3: 1.13 (+36.14%) → Day 7: 0.70 (-15.66%) → Day 15: 0.80 (-3.61%).
- **Grade 0810-Z14B:** Day 1: 1.00 → Day 3: 1.06 (+6.00%) → Day 7: 0.93 (-7.00%) → Day 15: 0.95 (-5.00%).

Part III: Compatibility in Emulsion-Dispersant Systems (兑乳液分散剂性能)

Testing Recipe: Thickener Emulsion / (918 Emulsion 47.62% + Pure Water 47.62% + Dispersant 4.76% + Ammonia Water adjusted to pH 7.5 - 8.0) + Defoamer 0.2g = 1.9% total dosage.

CRITICAL TECHNICAL STABILITY WARNING: All versions experience complete phase separation (7d分层) at the 7-day storage milestone under the coexistence of active dispersants.

- **Stormer Viscosity (KU) Progression Before Separation (图七):**

- **Grade 0810:** Day 1: 73.7 KU → Day 3: 81.2 KU (+10.18%) → Day 7: Phase Separation (分层).
- **Grade 0810-Z14A:** Day 1: 77.1 KU → Day 3: 86.0 KU (+11.54%) → Day 7: Phase Separation (分层).
- **Grade 0810-Z14B:** Day 1: 77.8 KU → Day 3: 83.6 KU (+7.46%) → Day 7: Phase Separation (分层).
- **Rotational Viscosity at 60 rpm Before Separation (unit: mPa·s / 图八):**
 - **Grade 0810:** Day 1: 2200 mPa·s → Day 3: 2500 mPa·s (+13.64%) → Day 7: Phase Separation.
 - **Grade 0810-Z14A:** Day 1: 2200 mPa·s → Day 3: 2700 mPa·s (+22.73%) → Day 7: Phase Separation.
 - **Grade 0810-Z14B:** Day 1: 2200 mPa·s → Day 3: 2700 mPa·s (+22.73%) → Day 7: Phase Separation.
- **Low-Shear Viscosity at 6 rpm Before Separation (unit: $\times 10^4$ mPa·s / 图九):**
 - **Grade 0810:** Day 1: 0.95 → Day 3: 0.96 (+1.04%) → Day 7: Phase Separation.
 - **Grade 0810-Z14A:** Day 1: 1.18 → Day 3: 0.99 (-16.67%) → Day 7: Phase Separation.
 - **Grade 0810-Z14B:** Day 1: 1.15 → Day 3: 0.97 (-15.38%) → Day 7: Phase Separation.

Storage Parameters

Please store this product inside tightly sealed containers protected from direct sunlight, in a cool, dry environment. The storage temperature parameters must be maintained strictly between 5°C and 35°C, ensuring the original packaging remains completely intact. This product carries an official shelf life of six months from its recorded manufacture date. If the product exceeds this designated shelf life period, a complete performance re-evaluation is highly recommended before actual formulation usage. Once the packaging has been opened, it is recommended to pass the liquid through an appropriate filtration medium prior to application, and the remaining contents should be consumed as quickly as possible.

Disclaimer

Shandong Sanjia Polymer Material Co., Ltd. strongly advises that customers meticulously execute processing, handling, and formulation operations safely and rationally based upon the precise parameters outlined in the corresponding Material Safety Data Sheet (MSDS). While we firmly believe the technical data and formulation recommendations compiled herein are accurate and reliable, the contents of this Technical Data Sheet are provided exclusively for reference purposes. We offer no warranties, whether express or implied, regarding product characteristics, practical application performance, quality consistency, operational safety, technical specifications, merchantability, or fitness for any specialized individual purpose.

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