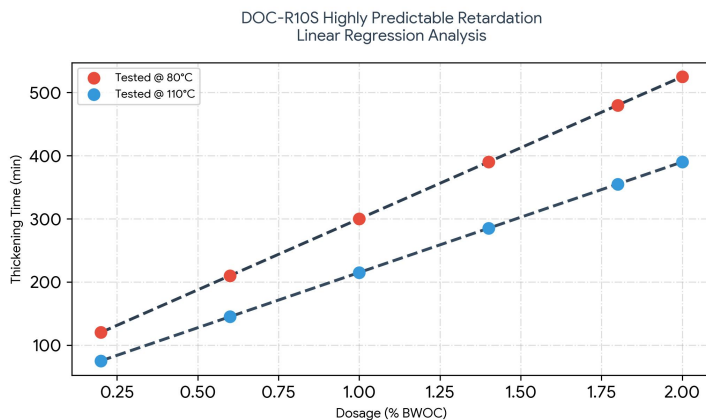


DOC-R10S Low & Medium Temperature Retarder

Modified Lignosulfonate Retarder for Freshwater, Saltwater, and Seawater Systems

1. Performance Highlight (Dosage vs. Thickening Time)

According to laboratory evaluations, DOC-R10S demonstrates a highly adjustable and regular linear thickening profile. The typical relationship between product dosage and cement slurry thickening time at 80°C and 110°C is demonstrated below:



2. Features & Benefits

- **Predictable & Adjustable Linearity:** Effectively prolongs the thickening time of cement slurries with strong regularity and excellent linearity, allowing for highly tunable pumping windows.
- **Universal Water Suitability:** Exceptionally versatile in its application; thoroughly suitable for slurry preparation in freshwater, saltwater, and seawater environments.
- **Short Transition Time:** Exhibits a fast transition time (40-100 Bc < 40 minutes), which helps mitigate the risks of gas migration and ensures better zonal isolation.
- **Low to Medium Temperature Focus:** Specifically optimized for well cementing operations with Bottom Hole Circulating Temperatures (BHCT) up to 110°C (230°F).

- **Wide Dosage Range:** Operates effectively across a broad dosage range (0.1% - 2.0% BWOC), giving engineers maximum flexibility in slurry design.

3. Technical Specifications & Slurry Properties

Property Item	Technical Specification / Index
Appearance	Brown solid / mixed powder
Chemical Base	Modified lignosulfonate
Applicable Temperature Range	≤ 110°C (BHCT)
Recommended Field Dosage	0.1% - 2.0% (BWOC)

Slurry Performance Item	Index	Test Condition
Tunability of Thickening Time	Adjustable	80°C / 45min, 46.5 MPa
Thickening Linearity	Normal (Excellent)	80°C / 45min, 46.5 MPa
Transient Time (40-100 Bc, min)	< 40	80°C / 45min, 46.5 MPa

* Base Slurry Reference Formulation: 800g of 'G' cement, 344g of fresh water, 8g of Fluid Loss Additive DOC-610S, 4g of Defoamer DOC-D15L, and 1g of Retarder DOC-R10S.

4. Packaging & Storage

- **Packaging:** Packaged in 25 Kg bags, or according to specific customer requirements.
- **Storage Conditions:** Should be stored in cool, dry and ventilated areas. Avoid being exposed to direct sun and rain. Keep away from heat sources.

To obtain the Material Safety Data Sheet (MSDS) or to learn more about laboratory application schemes, please contact us directly: QINGDAO DIMENSIONAL COPOLYMERIZATION ENERGY CO., LTD.

Website: www.dicoenergy.com | Technical Support Email: info@dicoenergy.com