TS-NANO

TSN-23 – Transforms cement performance to deliver gas-tight, long-term well integrity

Key Features

- Compatible with standard cement mixing and pumping operations
- Tailored to various cement blends*
- Limits fluid loss and eliminates cement shrinkage
- Polymer-cement composite can withstand 350°C / 662°F
- Non-toxic and environmentally safe formulation

Overview

When conventional cementing struggles to prevent gas migration and long-term well integrity issues, **TSN-23,** a nano-modified polymer cement modifier developed by TS-Nano, provides a next-generation solution.

TSN-23 is a patented nano-modified polymer that is added to various cement blends to enhance their sealing performance, elasticity, ductility, and long-term durability. Designed to improve the mechanical properties and durability of traditional cement, TSN-23 ensures superior bond strength, minimal fluid loss, no shrinkage, and resistance to gas migration, making it a reliable solution for wellbore integrity.

Benefits to the Cement

- **Prevent gas breakthrough:** Coalesces hydrating cement surfaces against gas channel with its high surface tension combined with very fast gelation time and high compressibility to prevent hydrostatic pressure loss
- **Elastic and ductile:** The polymer-cement composite has high elasticity, ductility, and ultra-high cracking resistance against severe downhole conditions
- **Superior bond:** Excellent bond between the polymer-cement composite, casing, and the rock formation
- **Permanent seal:** Very low liquid and gas permeability leading to very high durability against severe downhole conditions to last indefinitely

Performance Highlights

Characteristic**	w/ Class-G Blend	w/ Class-C Blend
Thickening time	2-3 hours	2-4 hours
Gelation time (40-100BC)	11 minutes	15 minutes
Compressive strength (24h)	+28.0 MPa / 4,000 psi	+11.0 MPa /1600 psi
Shear bond strength with casing (24h)	+3.5 MPa / 500 psi	+3.5 MPa / 500 psi
Shrinkage strain (24h)	0	0

* Engineering designs and lab tests are required to account for the variances in different cement types
** Lab tests at 70°C / 158°F

Contact Us
To learn more about TSN-23's technical specifications, field performance, or to request a case study, contact TS-Nano's technical team at:

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