

RITEKS RiLOCK™ TufCem Resin

RESIN-IN-CEMENT TECHNOLOGY



THE INDUSTRY CHALLENGE

The challenge is well defined: pure resin systems deliver exceptional bonding and sealing performance but are often cost-prohibitive, while conventional cement remains economical yet can lack the mechanical strength required for reliable zonal isolation.

RiLOCK™ TufCem CLOSES THE PERFORMANCE-COST GAP.

Through the formation of a stable, cohesive emulsion, it integrates proprietary RiLOCK™ Resin chemistry with standard cement systems to deliver a uniform, high-performance wellbore sealant that enhances durability, bonding integrity, and zonal isolation effectiveness.



SAMPLE 01
Separated
Competitive Resin-
in-Cement Slurry

SAMPLE 02
HOMOGENEOUS
RiLOCK™ TufCem

KEY ADVANTAGES OF RiLOCK™ TufCem

MECHANICAL PROPERTY GAINS

+633%

MODULUS OF TOUGHNESS

18% higher Poisson's Ratio & double-digit improvements in Young's Modulus.

OPTIMIZED BOND STRENGTH

+55%

SHEAR BOND ADHESION

Reduces **micro-annuli occurrences** and mitigates gas / fluid flow post-set.

ADVANCED SLURRY PROPERTIES

+48%

FLUID-LOSS IMPROVEMENT

Enhances **fluid-loss control** and gas tightness throughout the column.

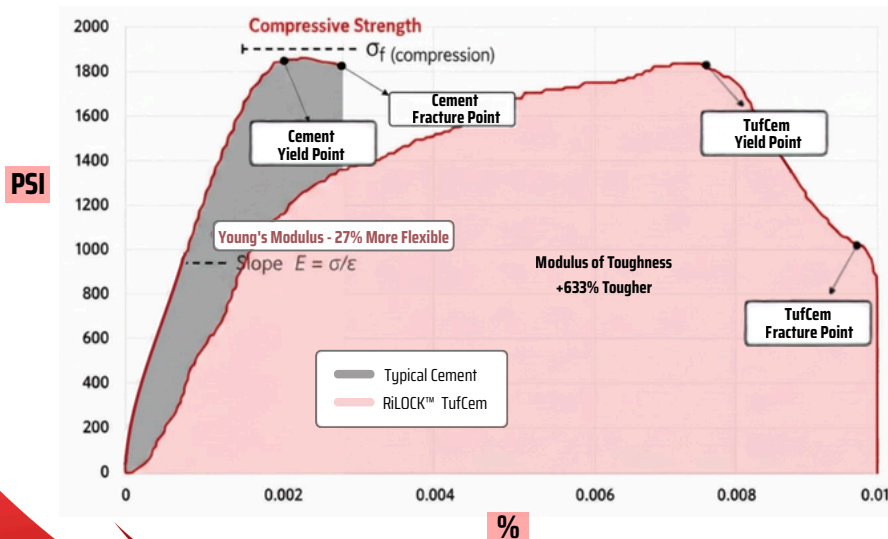
ENGINEERED RESIN-IN-CEMENT

RiLOCK™ TufCem combines the compressive strength of cement with the flexibility and sealing performance of a resin made specifically for cement — a highly durable, homogenous system delivering enhanced bonding, improved resilience, and long-term zonal isolation and integrity.

SEAL INTEGRITY TESTING

STRESS VS. STRAIN · MECHANICAL CHARACTERIZATION

Stress vs. Strain (Cement vs TufCem)



ENHANCED MECHANICAL PROPERTIES

Young's Modulus	Resistance to deformation
Poisson's Ratio	Ability to deform radially under load
Compressive Strength	Maximum stress loading under compression

STRESS LOAD ENDURANCE

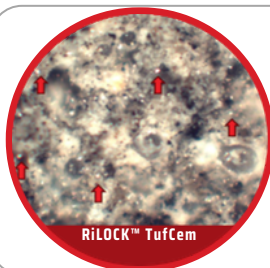
Toughness	Energy absorbed up to complete failure
Resilience	Ability to spring back after deformation
Cyclic Loading	Maximum stress loading over time

PERFORMANCE DATA

CLASS-H CEMENT VS. RiLOCK™ TufCem

METRIC	CLASS-H CEMENT	RiLOCK™ TufCem	IMPROVEMENT
Modulus of Toughness	0.3	2.2	▲ +633%
Fluid Loss	58 cc/30 min	30 cc/30 min	▲ +48%
Young's Modulus	1.14E+06 psi	8.34E+05 psi	-27% (MORE FLEXIBLE)
Poisson's Ratio	0.17	0.20	▲ +18%

RiLOCK™ TufCem and RiLOCK™ TCP-1



RiLOCK™ TufCem

MICROSTRUCTURE BUILDER

Unlike previous standalone resin versions, RiLOCK™ TufCem is engineered to create a reinforcing microstructure within Portland cement systems.



RiLOCK™ TCP-1

TUFCEM PREP ADDITIVE

Prepares Portland cement to form a uniform resin-in-cement system fully compatible with RiLOCK™ TufCem Resin for a homogeneous set.

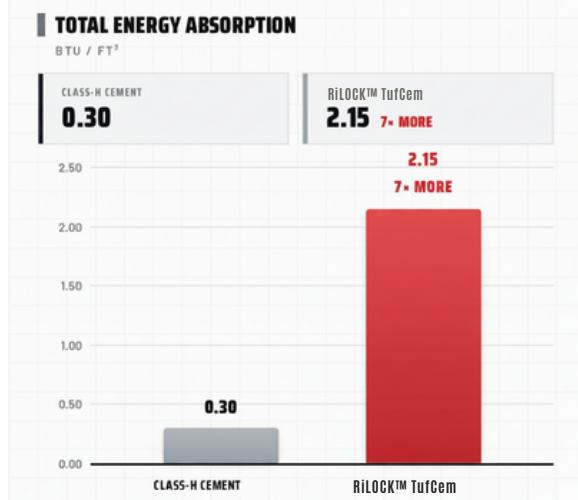
KEY TAKEAWAYS

- ✓ **Uniform chemistry** overcomes prior resin-cement incompatibilities.
- ✓ **Mixed on-site** with conventional cementing equipment.
- ✓ **RiLOCK™ TufCem is tougher cement** — a more durable barrier.
- ✓ **Cost-effective vs. pure resin** with superior long-term well integrity vs conventional cement

THE COMBINED RESULT

THE PERFECT COMBO — A STABLE, HIGH-PERFORMANCE EMULSION SYSTEM.

CONVENTIONAL CEMENT vs. RiLOCK™ TufCem



FEATURES, ATTRIBUTES, & BENEFITS

- 1 Engineered blend of cement additives and resin chemistry that ensures uniformity in a resin-in-cement system
- 2 Enhances mechanical properties to the entire column, constructing a better barrier
- 3 Provides the durability and seal integrity required for critical applications
- 4 A major performance upgrade to Portland cement—at a fraction of the cost of pure resin systems.



Scan the QR code to view the product page, download technical docs, and request samples.

