

# Tuned<sup>®</sup> Prime<sup>™</sup> Cement Spacer

## LOW-CRYSTALLINE-SILICA CEMENT SPACER FOR EFFECTIVE MUD REMOVAL

### OVERVIEW

Tuned<sup>®</sup> Prime<sup>™</sup> cement spacer helps to deliver a dependable barrier during cementing by effective mud removal and water-wetting of both casing and formation surfaces. This allows cement to develop a strong bond and hydraulic seal in a well annulus or casing. This cement spacer is engineered to help meet the U.S. Occupational Safety and Health Administration (OSHA) respirable crystalline silica permissible exposure limit (PEL) requirement 29 CFR 1910.1053.

Tuned Prime cement spacer contains a natural viscosifier and a non-hazardous scouring agent. The viscosifying component of this spacer allows for predictable and efficient tailoring of spacer rheology to meet the fluid system requirements. Tuned Prime cement spacer is designed to have equivalent rheology to conventional cement spacers at standard displacement rates. At lower shear rates, Tuned Prime cement spacer exhibits a higher shear stress, and, at higher shear rates, it exhibits lower shear stress when compared to conventional cement spacers. Temperature has a low influence on the rheological properties within its application range. Tuned Prime cement spacer uses engineered particulates to function as scouring agents for more effective filter-cake removal and wellbore cleaning.

Surface efficiency is improved by rapid yielding of the spacer to the desired rheological properties. Tuned Prime cement spacer is dry blended with weighting agents in the bulk plant and then shipped to location. It can be mixed on the fly or batch mixed with its mix fluid to form the spacer fluid system. Dry surfactants can be added to the dry blend, or liquid surfactants can be added to the fluid system on location.

### APPLICATIONS

Tuned Prime cement spacer can be added to a wide range of water sources to effectively displace both oil- and water-based muds at temperatures up to 280°F (138°C). Surfactants can improve the compatibility with oil-based mud. Most common spacer concentrations range from 10 lbm/bbl to 50 lbm/bbl, with densities ranging from 10 lbm/gal to 16 lbm/gal; however, densities and concentrations outside these ranges can be readily designed.

### Crystalline silica

	Crystalline Silica Concentration (by wt)	Crystalline Silica Reduction
Conventional Cement Spacer	29%	—
Tuned <sup>®</sup> Prime <sup>™</sup> Cement Spacer	< 2%	93.3%

*Tuned<sup>®</sup> Prime<sup>™</sup> cement spacers exhibit over 90% by weight reduction in crystalline silica content over conventional cement spacers.*

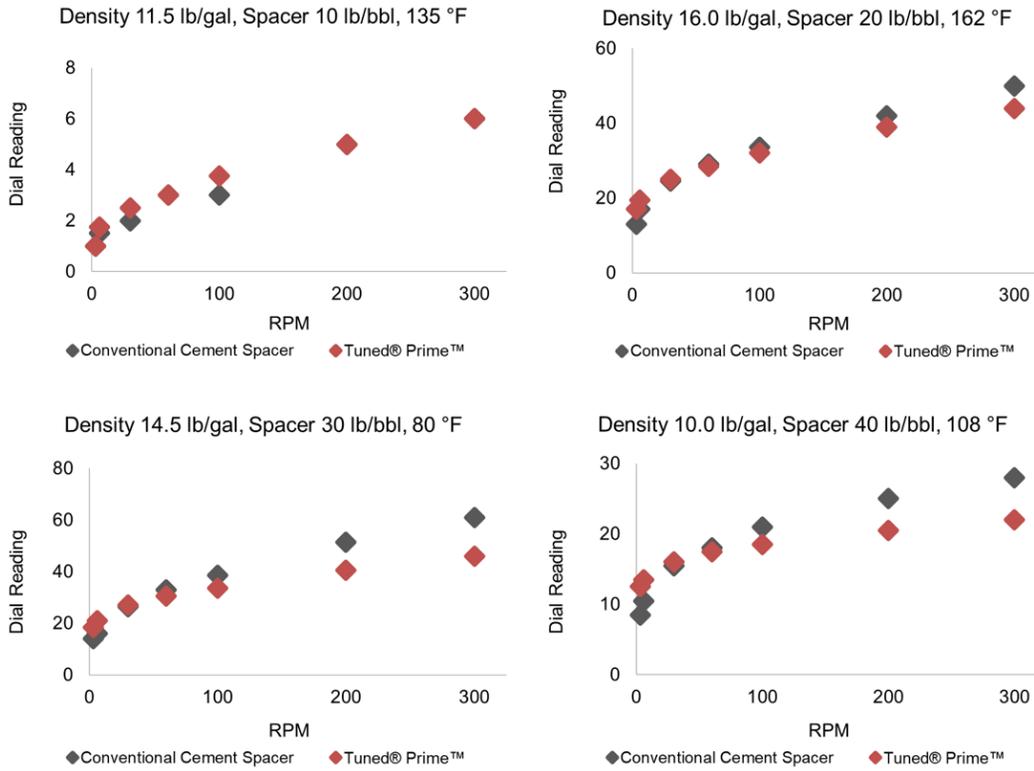
### FEATURES

- » Low crystalline silica
- » Tunable rheology and density
- » Engineered with scouring agents
- » Quick yielding

### BENEFITS

- » Helps meet OSHA respirable crystalline silica PEL requirement
- » Provides rheological and density hierarchies for efficient mud removal
- » Water-wets casing and formation, improving cement bonding
- » Aids removal of filter cake from formation
- » Can be mixed on the fly

## Rheology



*Tuned® Prime™ cement spacers demonstrate comparable rheological behavior to conventional cement spacers over a range of densities, concentrations, and temperatures.*

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