



Waterfrac Proppant Technology

ValuBond 40/70

CURABLE RESIN COATED SAND WITH STRESS BOND TECHNOLOGY



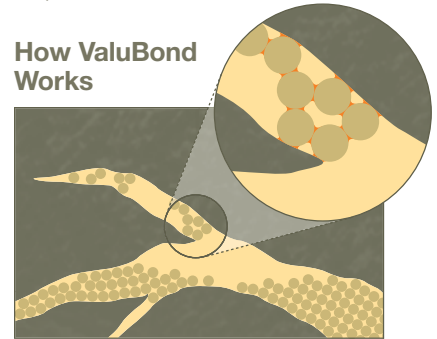
ValuBond™ is an economical resin coated sand designed for waterfrac applications. This new generation curable proppant has advanced Stress Bond™ (SB) technology offering higher “real-world” fracture flow capacity. As an ideal alternative to uncoated sand, ValuBond offers the following additional benefits:

- Higher Fracture Flow Capacity – Improved Post Treatment Well Production
- Lower Fines Generation/Migration – Higher Long-Term Fracture Flow Capacity
- Proppant Flowback Control – Higher Production Rates/ No Wellbore Cleanouts
- Stress Bond Technology – Bonds in Fracture Under Closure Stress and Temperature

Recommended Applications

- Waterfracs from 4,000 to 7,500 psi closure stress
- Bottom-hole static temperatures up to 250°F

How ValuBond Works



ValuBond is a curable RCP which allows proppant grains to bond to the formation in any “off-shoot” fractures. This feature offers additional fracture flow capacity as the well is produced. Due to its ability to bond, ValuBond will hold open the small microfractures while other proppants may shift and allow the microfractures to close.

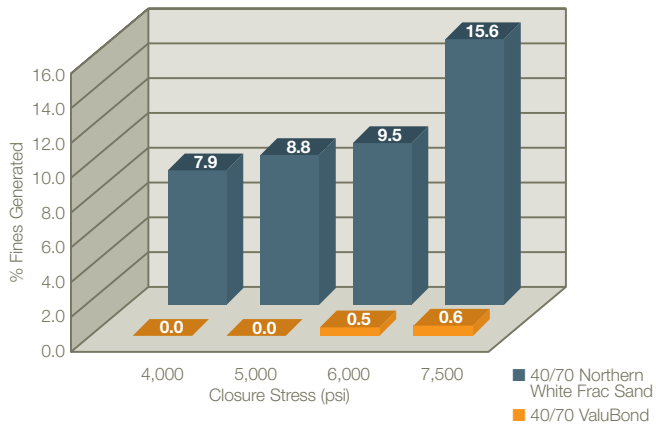
ValuBond 40/70 Long-Term Conductivity

Stim-Lab, Inc. Proppant Consortium Baseline Procedure, 250°F, 2 lb./ft.²

Closure Stress (psi)	2,000	4,000	6,000	7,500
Conductivity (md-ft)	975	772	515	280



Fines Generation Comparison – Wet, Hot Crush Test ValuBond vs. Northern White Frac Sand



Sample cured at 200°F, 1,000 psi for 24 hours in a 2% KCl solution. Crush test completed according to API RP-56 procedure. ValuBond reduces proppant fines and provides higher fracture flow capacity.

Physical Properties	Typical
API mesh size	40/70
Physical state	solid particulate
Particle density g/cm ³ [lb/gal]	2.59 [21.6]
Specific volume cm ³ /g [gal/lb]	0.408 [0.0463]
Bulk density g/cm ³ [lb/ft ³]	1.45 [91]
Pipe-fill factor cm ³ /gal [gal/lb]	0.690 [0.0826]
Krumbein shape factors, roundness sphericity	0.6 – 0.7 0.6 – 0.7
Particle size distribution,	meets or exceeds API RP-56
Turbidity, NTU (FTU)	< 300
Coating efficiency, weight %	> 99.7
Clusters, weight %	< 1
Compressive strength	24 hours at 200°F, 1,000 psi closure in 2% KCl 40/70 mesh > 200

HEXION™

Oilfield Technology Group
15115 Park Row, Suite 160
Houston, TX 77084 USA
+1 281 646 2800
hexion.com/oilfield

For worldwide locations visit hexion.com

Fracturing photo courtesy of Halliburton.

© and ™ Licensed trademarks of Hexion Specialty Chemicals, Inc.

© 2007 Hexion Specialty Chemicals, Inc. HCl-180 12/07 Printed in U.S.A.

The information provided herein was believed by Hexion Specialty Chemicals ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.