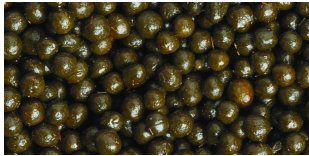


# Technical Data Sheet

## XRT™ Ceramax™ P Proppants

### Description



XRT™ Ceramax™ P proppants are designed to be the highest strength proppants available. Use of the eXtreme Resin Technology (XRT) system to encase a high density bauxite has yielded a proppant with high conductivity and resistance to cyclic stress.

### Typical Applications

Fracture treatments:

- At closure stress up to 14,000<sup>1</sup> psi [97 MPa]
- At bottom-hole static temperatures from 175 - 450°F [79 - 232°C]
- Helps prevent proppant flowback, especially under severe stress cycling
- When wellbore clean-out is a concern

### Technical Advantages and Benefits

- Higher conductivity than uncoated bauxite
- Proppant flowback control even under extreme conditions utilizing Stress Bond™ technology
- Superior cyclic stress resistance
- Temperature stability for both extended pumping and storage times
- Increases near wellbore conductivity over uncoated ceramics

### Typical Properties

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XRT™ Ceramax™ P Proppants

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Property	Value	Unit
API Mesh Size	20/40	
Bulk Density	1.92 [16.0]	g/cm <sup>3</sup> [lb/gal]
Color	brownish-black	
Compatibility	Fully compatible with most commonly used fracturing fluids, both water and oil-based systems. Testing with fluids prior to pumping is advised.	
Composition	resin coated bauxite	
Particle Size Distribution	meets or exceeds API RP 19C	
Physical State	solid granule	
Pipe Fill Factor	0.521 [0.0625]	cm <sup>3</sup> /g [gal/lb]
Resin Type	thermosetting, curable	
Solubility in Water, Brine & HCl	nil	weight %
Solubility in HCl/HF acid, API RP 19C	&#60; / = 3	weight %
Solubility In Oil	nil	weight %
Specific gravity	3.43	
Specific Volume	0.292 [0.0350]	cm <sup>3</sup> /g [gal/lb]

<sup>1</sup> XRT Ceramax P uses bauxite, which is the highest strength ceramic. Conductivity testing conducted up to 14,000 psi.

## Technical Considerations

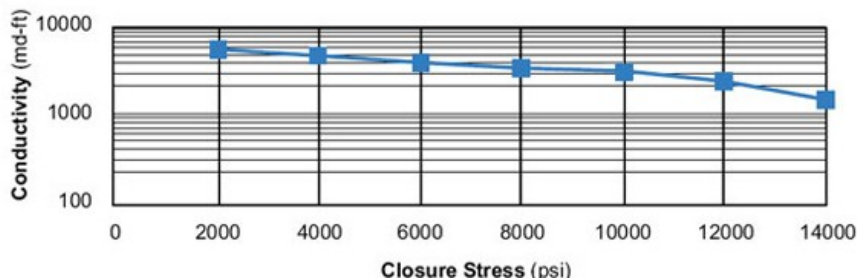
- Grain-to-grain contact must occur and closure stress must be applied during the cure period for proper bonding
- Recommended lower temperature for use is 175°F [79°C]

### Long-Term Conductivity

Stim-Lab, Inc. Consortium Long-Term Baseline Procedure

Proppant Concentration: 2 lb<sub>m</sub>/ft<sup>2</sup> [9.8 kg/m<sup>2</sup>], Temperature: 300°F [149°C]

Closure Stress (psi)	2,000	4,000	6,000	8,000	10,000	12,000	14,000
Size	20/40	5212	4928	4182	3504	3015	2346
Conductivity (md-ft)	5212	4928	4182	3504	3015	2346	1685



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