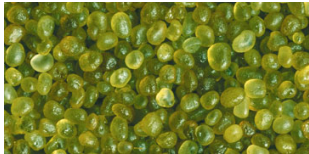


Technical Data Sheet

Prime Plus™ Proppants

Description



Prime Plus™ proppants are an advanced, curable resin coated sand available in 16/30, 20/40, 30/50, and 40/70 mesh sizes. These proppants are designed for use in the major basins of North America where premium performance is required. They have a proven track record of delivering the industry's highest performing curable resin coated sand conductivity, resulting in improved well performance.

Typical Applications

Fracture treatments:

At closure stress up to:

- 10,000 psi [69 MPa] (16/30 and 20/40)
- 12,000 psi [83 MPa] (30/50 and 40/70)

At bottom-hole static temperatures* from:

- 130 - 450°F [54 - 232°C] (16/30 and 20/40)
- 110 - 450°F [43 - 232°C] (30/50 and 40/70)

*Does not require a low temperature consolidation aid down to recommended temperatures.

Technical Advantages and Benefits

- High conductivity
- Proppant flowback control
- Proppant fines reduction
- Cyclic stress resistance
- Minimizes proppant embedment
- Reduces respirable silica dust exposure below PEL limits

Typical Properties

Prime Plus™ Proppants
<https://www.hexion.com/en-US/product/prime-plus>

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Property	Value	Unit
Absolute Volume	0.386 [0.0463], 0.380 [0.0455], 0.385 [0.0461], 0.386 [0.0463]	cm ³ /g [gal/lb]
API Mesh Size	16/30, 20/40, 30/50, 40/70	
Bulk Density	1.53 [12.8], 1.47 [12.3], 1.45 [12.1], 1.45 [12.1]	g/cm ³ [lb/gal]
Color	light green	
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, northern white frac sand	
Median Particle Diameter	0.4513, 0.2992	mm
Particle Size Distribution	meets or exceeds API RP 19C	
Physical State	solid granule	
Pipe Fill Factor	0.653 [0.0782], 0.680 [0.0813], 0.690 [0.0826], 0.690 [0.0826]	cm ³ /g [gal/lb]
Resin Type	thermosetting, curable	
Solubility in Water, Brine & HCl	nil	weight %
Solubility in HCl/HF acid, API RP 19C	< / = 3	weight %
Solubility In Oil	nil	weight %
Specific gravity	2.59, 2.63, 2.60, 2.59	
Turbidity	< 250	NTU (FTU)

Technical Considerations

- Grain-to-grain contact must occur and closure stress must be applied during the cure period for proper bonding
- Consolidation of curable product at bottom-hole static temperatures below 130°F [54°C] is achieved by use of Hexion's Activator™ low temperature consolidation aid

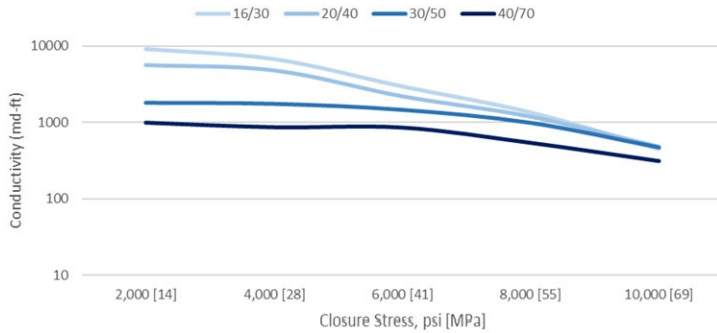
Conductivity

PropTester, Inc. Long-Term Baseline Procedure

Proppant Concentration: 2 lb_m/ft² [9.8 kg/m²], Temp: 250°F [121°C]

Closure Stress, psi [MPa]	2,000 [14]	4,000 [28]	6,000 [41]	8,000 [55]	10,000 [69]
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Size	Conductivity (md-ft)				
16/30	9,045	6,698	2,955	1,358	454
20/40	5,586	4,762	2,190	1,191	483
30/50	1,807	1,752	1,461	987	469
40/70	995	865	856	538	309



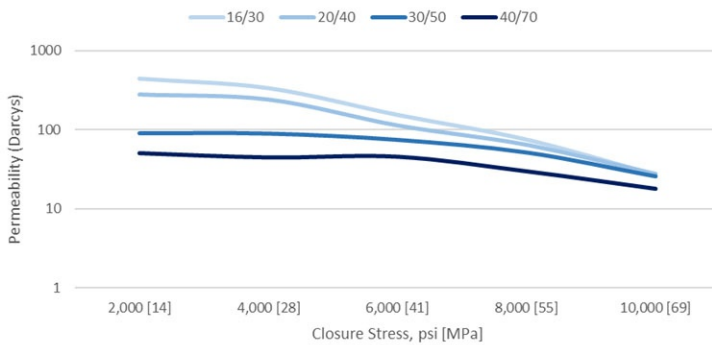
Permeability

PropTester, Inc. Long-Term Baseline Procedure

Proppant Concentration: 2 lb_m/ft² [9.8 kg/m²], Temp: 250°F [121°C]

Closure Stress, psi [MPa]	2,000 [14]	4,000 [28]	6,000 [41]	8,000 [55]	10,000 [69]
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Size	Permeability (Darcys)				
16/30	442	335	154	75	27
20/40	279	241	114	65	28
30/50	91	90	75	52	26
40/70	51	45	46	30	18



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