



# BADGER MINING CORPORATION

## TECHNICAL DATA Atlas Curable Resin Coated Proppant (CRC-C)

**ATLAS** Curable Resin Coated (CRC-C) products combine excellent proppant flowback prevention with the high-end strength and conductivity you would expect from a Premium product. Our exclusive resin complex provides protection from harsh well conditions and reduces or eliminates fines migration in the fracture. The durable nature of our coating significantly reduces embedment versus uncoated propping agents, and because our coating is non-reactive it reduces scale formation. All products from Atlas are coated on a premium Northern White sand substrate.

- CRC-C is our Premium line of Curable Proppant and is 3.5 – 3.8% resin by weight
- CRC-C products are a cost effective solution to low and medium density ceramic proppant while providing proppant flowback prevention and reducing embedment

TESTS - UNITS	TYPICAL PROPERTIES
Krumbein Shape Factor-Sphericity	0.7-0.8
Loss on Ignition	3.5-3.8%
Turbidity (NTU)	< 200
Acid Solubility	< 0.3%
Absolute Volume (gal/lb)	.047-.048
Particle Size Distribution	Meets or exceeds API RP-56
Color	Gold
Physical State	Free Flowing Solid

API Mesh Size	16/30	20/40	30/50	40/70
Bulk Density (lb/cu.ft)	94.30	94.90	94.90	93.01
Specific Gravity	2.56	2.55	2.55	2.50
<b>Unconfined Compressive Strength:</b>				
228°F and 1,000 psi closure (24 hours)	>600 psi	>600 psi	>650 psi	>660 psi
228°F and 0 psi closure (24 hours)	< 5 psi	< 5 psi	< 5 psi	< 5 psi

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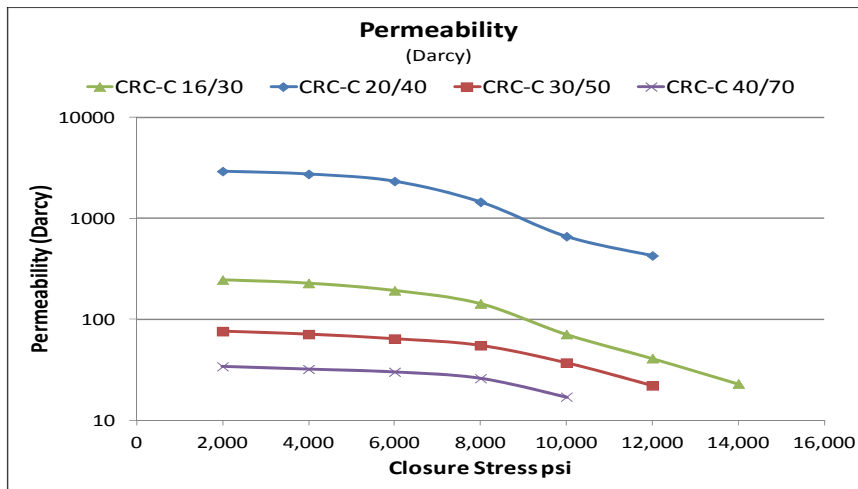
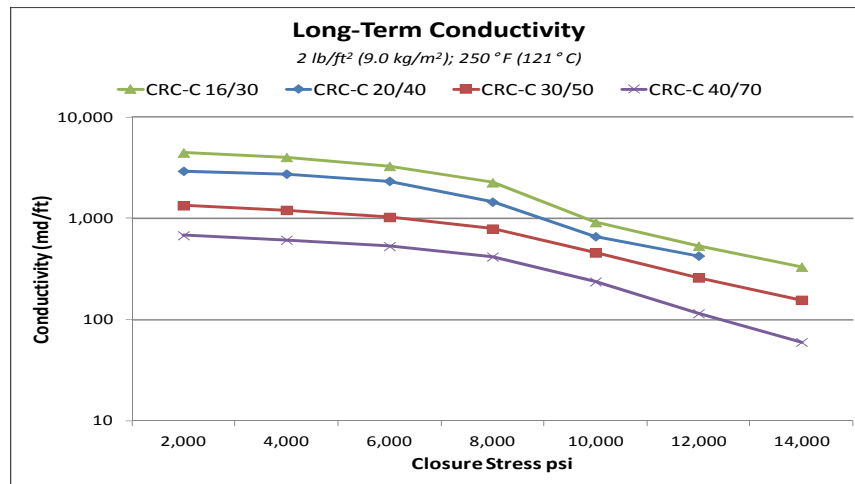
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CONDUCTIVITY							
MD-FT AT 2 lb/ft <sup>2</sup> (9.8 kg/m <sup>2</sup> ); 250°F (121°C)							
	Closure Stress psi						
	2,000	4,000	6,000	8,000	10,000	12,000	14,000
CRC-C 16/30	4,451	4,012	3,277	2,259	914	534	332
CRC-C 20/40	2,932	2,747	2,333	1,455	662	427	
CRC-C 30/50	1,338	1,206	1,028	787	459	260	156
CRC-C 40/70	679	612	530	418	237	115	60

PERMEABILITY							
Darcy							
	Closure Stress psi						
	2,000	4,000	6,000	8,000	10,000	12,000	14,000
CRC-C 16/30	246	228	193	143	71	41	23
CRC-C 20/40	132	128	116	88	46		
CRC-C 30/50	76	71	64	55	37	22	
CRC-C 40/70	34	32	30	26	17		

\* Data points represent the median value of accumulated Stim-Lab data



Silica Sand and Resin-Coated Silica Sand Products  
DANGER



These products have been classified, following the Globally Harmonized System (GHS) of Classifying and Labeling Chemicals criteria, as a Category 1A Carcinogen, a Category 1 Specific Target Organ Toxicity (following repeated exposures), and a Category 2B Eye Irritant. For Industrial Use Only. DO NOT USE THIS PRODUCT FOR BLASTING OR AS AN ABRASIVE. DO NOT PNEUMATICALLY UNLOAD THE RESIN-COATED SILICA SAND PRODUCTS AT A PRESSURE EXCEEDING 5 PSI SO AS TO AVOID ABRADING THE PRODUCT. DO NOT BREATHE DUST.

Read the specific Safety Data Sheet (SDS) before using and follow applicable local, state and federal health and safety standards. The SDSs for the products are available online at [www.badgerminingcorp.com](http://www.badgerminingcorp.com) or by calling 1-800-932-7263. February 11, 2015 Revision D