



BADGER MINING CORPORATION

TECHNICAL DATA

Atlas Economy Curable Resin Coated Proppant (CRC-E)

ATLAS Curable Resin Coated (CRC-E) products provide an Economical solution for proppant flowback prevention without sacrificing the strength and conductivity you need. 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 like hard ceramic proppants, 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-E is our Economy line of Curable Proppant and is 1.9 – 2.3% resin by weight
- CRC-E products are the solution for proppant flowback in moderate temperature wells (110° F or higher) and work in conjunction with our Atlas Activator

TESTS - UNITS	TYPICAL PROPERTIES
Krumbein Shape Factor-Sphericity	0.7-0.8
Loss on Ignition	1.9%-2.3%
Turbidity (NTU)	< 200
Acid Solubility	< 0.3%
Absolute Volume (gal/lb)	.047
Particle Size Distribution	Meets or exceeds API RP-56
Color	Gold
Physical State	Free Flowing Solid

API Mesh Size	20/40	30/50	40/70
Bulk Density (lb/cu.ft)	99.26	99.26	96.14
Specific Gravity	2.57	2.55	2.55
Unconfined Compressive Strength:			
228°F and 1,000 psi closure (24 hours)	>641 psi	>560 psi	>560 psi
228°F and 0 psi closure (24 hours)	< 5 psi	< 5 psi	< 5 psi

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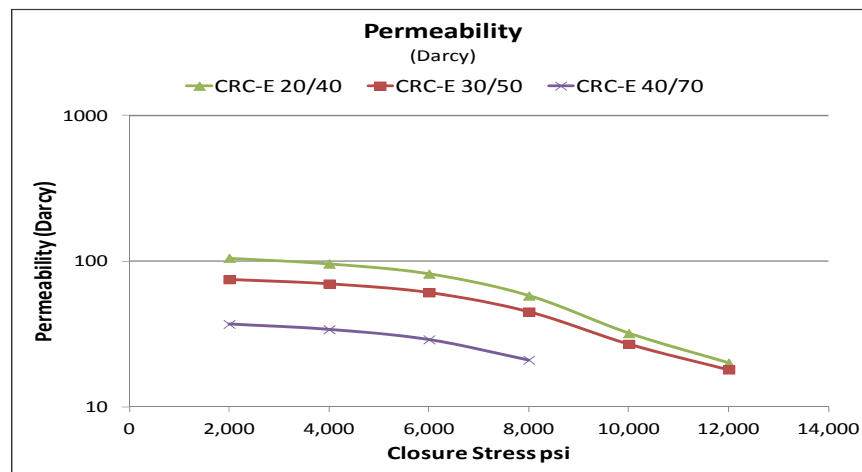
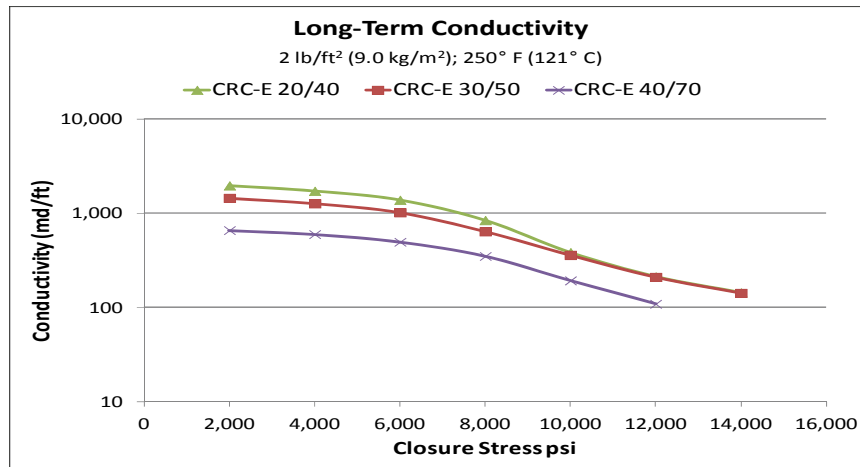
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CONDUCTIVITY							
MD-FT AT 2 lb/ft ² (9.8 kg/m ²); 250°F (121°C)							
	Closure Stress psi						
	2,000	4,000	6,000	8,000	10,000	12,000	14,000
CRC-E 20/40	1,970	1,728	1,388	844	384	213	144
CRC-E 30/50	1,452	1,272	1,021	642	360	210	142
CRC-E 40/70	660	599	497	351	193	109	

PERMEABILITY							
Darcy							
	Closure Stress psi						
	2,000	4,000	6,000	8,000	10,000	12,000	14,000
CRC-E 20/40	105	96	82	58	32	20	
CRC-E 30/50	75	70	61	45	27	18	
CRC-E 40/70	37	34	29	21			

* 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 or by calling 1-800-932-7263. February 11, 2015 Revision D