15k HSP

Features

Our testing reveals that in most cases KIP Products crush hemispherically

KIP can custom manufacture ceramic proppant with specific density, size and crush strength for use in very specific well formations.

Production increases when using the “KIP” high strength ceramic proppant. High pressure and extreme heat require the strongest crush strength and proppant engineering technology.

> “KIPs HSP PRODUCTS ARE PROVEN TO INCREASE OIL AND GAS PRODUCTION

API Crush / Fines	14,000 PSI	8.44%	20-40 KIP
API Crush / Fines	16,000 PSI	9.09%	30-50 KIP
API Crush / Fines	19,000 PSI	8.91%	40-70 KIP

Roundness	0.9
Sphericity	0.9
Bulk, gm/cm3	1.82

All results based on averages

Testing Equipment:

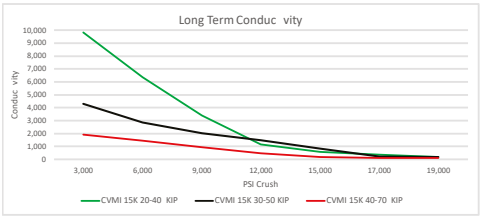
Test Method(s) Used: ISO 13503-2, Sections 6, 7, 8, 9, 10 and 11. ISO 13503-5. API-RP-19C/ISO 13503-2

Conductivity Procedure Overview:

ISO13503-5 / API RP-19D is used as the basis for the Proppant pack conductivity testing method, with modifications as directed by the client (if any). Testing was conducted against steel plates at 250F with a cell loading of 2.0 lbm/ft2 in each of API cells.

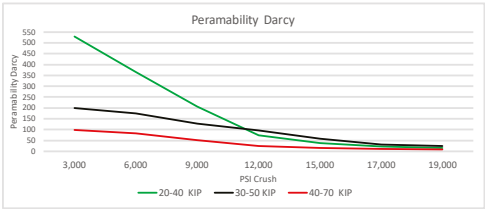
Apparatus:

Sample Prep: Split Ro-Tap RX29, sieve set ATS-2; B&L Optical Microscope; Firefly Digital Microscope; Krumbein Chart, Burrell Shaker, Hach 2100 Turbidimeter, ANSI B74.4 Density Apparatus, Tinius-Olsen 150,000 lb tester, ISO 13503-2 Crush Cell, ISO 13503-2 Section 8 Solubility Apparatus; Humboldt Sample Reducer, Humboldt Sample SplitterMicromeritics AcuPync 1335 Pyncnometer



Long-Term Conductivity 2% KCl

Closure Stress (psi)	20-40 KIP	30-50 KIP	40-70 KIP
3,000	9,846	4,280	1,916
6,000	6,366	2,856	1,426
9,000	3,390	2,002	941
12,000	1,144	1,473	462
15,000	583	819	193
17,000	350	210	98
19,000	171	192	86



Permability Darcy

Closure Stress (psi)	20-40 KIP	30-50 KIP	40-70 KIP
3,000	529	199	99
6,000	365	175	82
9,000	206	128	52
12,000	73	97	25
15,000	37	57	15
17,000	22	32	10
19,000	16	25	8

KUTHBAN
INDUSTRIAL PROPPANT

APIRP19D is the guideline procedure used for testing the long-term conductivity of proppants. The procedure states: “The procedures presented in this publication are not intended to inhibit the development of new technology, material improvements, or improved operational procedures. Qualified engineering analysis and sound judgment is required for their application of it a specific solution.” The following are modifications to the APIRP19D which are used to improve testing with advances in equipment and data acquisition, acquired since the original published procedure in 2006 under ISO13503-3 and adopted as APIRP19D.