

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 SP PRODUCTS ARE PROVEN TO INCREASE OIL AND GAS PRODUCTION

API Crush / Fines	10,000 PSI	7.40%	20-40 KIP
API Crush / Fines	12,000 PSI	9.60%	30-50 KIP
API Crush / Fines	13,000 PSI	8.91%	40-70 KIP

All results based on averages

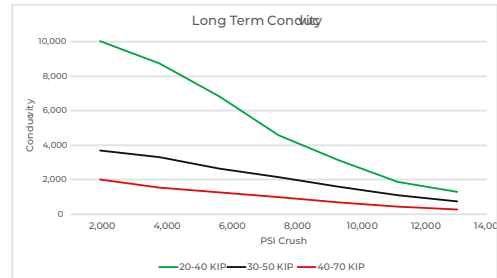
Roundness	0.9
Sphericity	0.9
Bulk, gm/cm3	1.72

Testing Equipment:

The equipment used for the measurement of conductivity and liquid permeability included: 75 ton Dake Press with air oil intensifier. API SS316 flow cells with 10 sq in. flow paths. Two - 10 sq in. Ohio Sandstone. Two-gallon nitrogen driven fluid reservoirs filled with 2% KCl and deoxygenated with nitrogen. An API cell was loaded with proppant sample to be tested. The proppant was leveled with a blade device

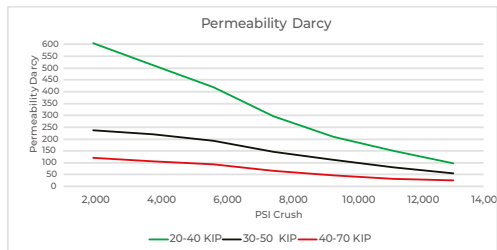
Conductivity Procedure Overview:

All ISO13503-2:2006 / API RP-19C evaluations followed the procedures as outlined in that document. These are the new procedures created from the old API RP 56, 58 and 60 procedures. The pressure was increased at 100 psi per minute at 1,000 and 2000 psi increments and the above measuring technique repeated until arriving at the requested long-term conductivity closures stresses. The conductivity and permeability of the proppant were continuously monitored at 10,000 psi and 250 °F for 50 hours.



Long-Term Conductivity

Closure Stress (psi)	20-40 KIP	30-50 KIP	40-70 KIP
2,000	488	248	99
4,000	436	221	86
6,000	408	207	82
8,000	318	173	72
10,000	278	159	68
12,000	181	124	56
14,000	133	99	50



Permeability Darcy

Closure Stress (psi)	20-40 KIP	30-50 KIP	40-70 KIP
2,000	605	238	121
4,000	512	220	105
6,000	420	192	93
8,000	297	147	65
10,000	209	113	47
12,000	150	81	31
14,000	97	55	25



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.