

PURE STRENGTH AND MAXIMUM CONDUCTIVITY

UNIFRAC® Hydraulic Fracturing Sands are produced from geologically mature quartz arenite sands of exceptional purity and structural integrity. These durable proppants will not degrade during handling or pumping, and feature low surface tension properties that minimize proppant induced friction in high shear jobs.

UNIFRAC® has excellent initial and retained conductivity under increasing and cyclic closure stress which is attributable to the unique geometry and structural integrity of the monocrystalline quartz grains. Round, spherical surfaces evenly distribute closure pressure to minimize embedment in the perforated layers for highly productive fracture lengths. Excellent suspension properties make UNIFRAC ideal to extend the proppant pack in longer laterals, maximizing hydrocarbon recovery.

API RP 19D 2 lb/ft², 150°F

Conductivity (md - ft)

Permeability (Darcy)

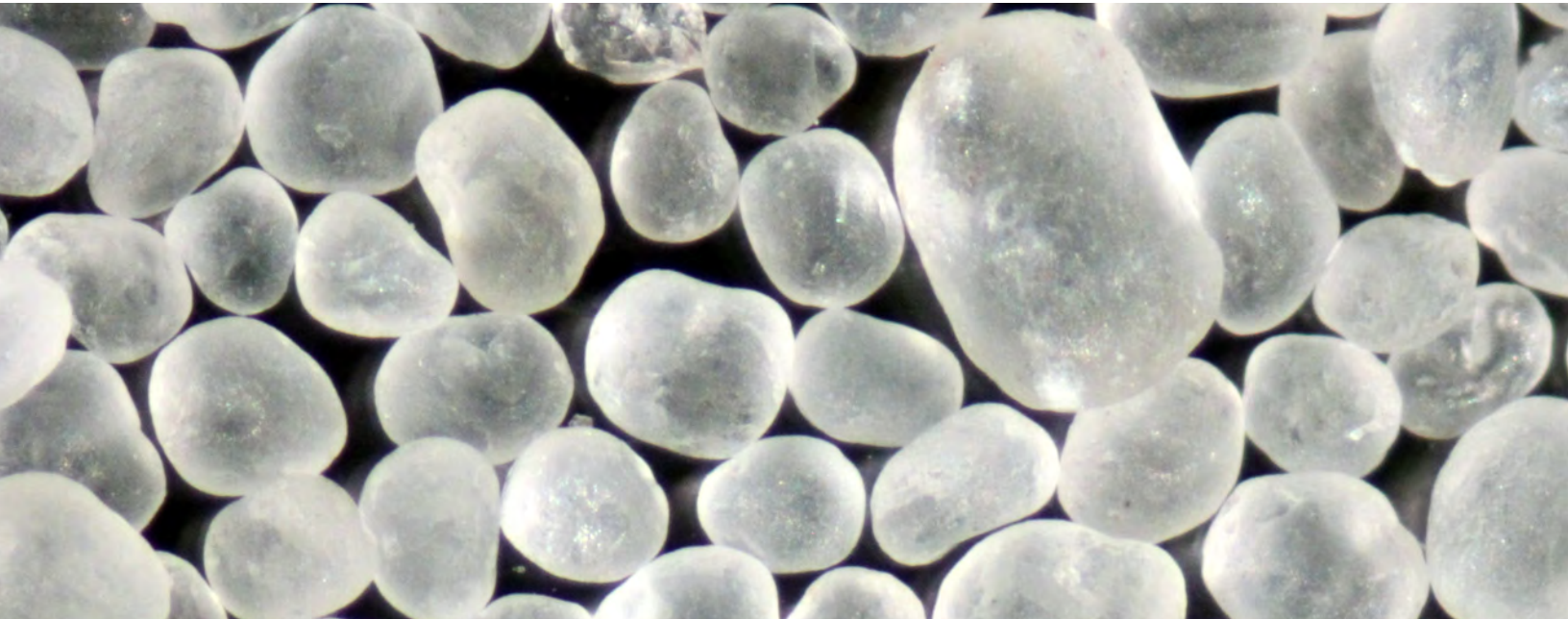
psi	12/20	16/30	20/40	30/50	40/70
2,000	15,708	9,133	4,572	2,686	1,385
4,000	5,119	4,461	3,021	2,081	1,043
6,000	1,804	1,813	1,477	1,158	691
8,000	579	739	570	429	374
10,000	356	315	210	202	211
12,000			91	94	103

psi	12/20	16/30	20/40	30/50	40/70
2,000	769	493	236	142	84
4,000	274	253	155	119	71
6,000	103	107	79	67	47
8,000	35	46	31	25	26
10,000	22	21	12	12	15
12,000			6	6	8

Conductivity and permeability results are average values compiled in repetitive testing per API RP 19D
Analyses are conducted by recognized and independent industry laboratories.
Test Conditions: 2 lb/ft² cell loading at 150°F with 2% KCl between Ohio Sandstone

Physical Properties (API RP 19C)

	12/20	16/30	20/40	30/50	40/70
Crush Resistance (K Factor)	3K	5K	7K	9K	11K
Specific Gravity	2.65	2.65	2.65	2.65	2.65
Bulk Density (lb/ft ³)	95	95	95	95	94
Bulk Density (g/cm ³)	1.53	1.53	1.53	1.53	1.50
Krumbein Roundness	0.8 - 0.9	0.7 - 0.9	0.7 - 0.9	0.7 - 0.9	0.7 - 0.9
Krumbein Sphericity	0.8 - 0.9	0.7 - 0.9	0.7 - 0.9	0.7 - 0.9	0.7 - 0.9
Acid Solubility (wt %)	<2.0	<2.0	<2.0	<2.0	<3.0
Turbidity (FTU)	<100	<100	<100	<100	<100
Silica Content (SiO ₂ %)	≥99.00	≥99.00	≥99.00	≥99.00	≥99.00



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