



PRODUCT DATA



SHALE FRAC™ SAND SERIES

Sub-Angular to Sub-Rounded Sands
For Use in Shallow Shale Wells

Columbia 16/30 Shown

| Individual % Retained U.S. Standard Sieve Size | 12/20 | 16/30 | 20/40 | NS-20 | USM 60 | L-55 | USM 65 |
|---|------------|---------------|---------------|-------------|-----------------------|------------|------------|
| | Columbia | | | Jackson | Kosse | Dubberly | Pacific |
| 12 | 0.9 | - | - | - | - | - | - |
| 16 | 50.6 | 0.5 | 0.1 | - | - | - | - |
| 20 | 47.1 | 47.7 | 3.6 | 1.1 | - | - | - |
| 30 | 1.4 | 46.9 | 61.3 | 5.5 | 0.5 | 0.1 | - |
| 40 | 0 | 4.8 | 34.0 | 10.5 | 10.5 | 1.4 | 4.4 |
| 50 | 0 | 0.1 | 0.1 | 19.9 | 29.2 | 23.7 | 18.8 |
| 70 | 0 | 0.1 | 0.1 | 38.3 | 33.9 | 55.1 | 35.0 |
| 100 | - | 0 | - | 22.4 | 21.4 | 15.6 | 29.9 |
| 140 | - | - | - | 2.4 | 4.1 | 3.3 | 11.1 |
| 200 | - | - | - | 0 | 0.3 | 0.8 | 0.9 |
| % In Size (≥ 90.0%) | 97.8 | 94.6 | 95.3 | NA | NA | NA | NA |
| Krumbein (≥ 0.6 each) Roundness/Sphericity | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.5 | 0.8 |
| | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 |
| Crush Test | Not Tested | 31.3% @ 4kpsi | 33.1% @ 4kpsi | Not Tested | 24.3% @ 5kpsi (40/70) | Not Tested | Not Tested |
| Acid Solubility | 0.4% | 0.4% | 0.5% | <2.0% (Est) | 1.5% | 1.7% | 0.7% |
| Turbidity | 10 | 9 | 11 | <50 (Est) | 58 | 32 | 13 |

* Prop Tester Report Available

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TYPICAL PROPERTIES

| | | |
|-------------------|--------------------------|------------------------------------|
| Round Grain Shape | 99.5+ % SiO ₂ | Specific Gravity 2.65 |
| 7 Mohs Hardness | Quartz Sand | Bulk Density 100 #/ft ³ |

DISCLAIMER: The information set forth in this Product Data Sheet represents typical properties of the product described; the information and the typical values are not specifications. U.S. Silica Company makes no representation or warranty concerning the Products, expressed or implied, by this Product Data Sheet.

WARNING: The product contains crystalline silica - quartz, which can cause silicosis (an occupational lung disease) and lung cancer. For detailed information on the potential health effect of crystalline silica - quartz, see the U.S. Silica Company Material Safety Data Sheet.