

# CARBOISP LITE

High-transport, low-density, low-crush ceramic proppant

## Features

- Bulk density and specific gravity match sand and lightweight ceramics
- Similar crush resistance compared to intermediate strength proppants
- Improved proppant transport
- Compatible with all fluid systems
- Low manufacturing and logistics CO<sub>2</sub> footprint

## Benefits

- ISP performance with lightweight density savings
- Delivers a 20% higher volumetric yield and 20% lower proppant requirement and savings compared to conventional ISPs
- Enhanced proppant transport allows the use of lower viscosity and cleaner frac fluids
- Reduces pumped water requirements, easier and faster cleanup times
- Low CO<sub>2</sub> footprint compared to conventional ISPs



CARBOISP LITE is an innovative proppant technology that combines the characteristics of an intermediate-strength proppant with all the advantages of lightweight ceramics, providing optimum fracture conductivity and proppant transport.

CARBOISP LITE allows operators to reduce their overall operations CO<sub>2</sub> carbon footprint, and its low density enables a higher volumetric yield compared to conventional ISPs – directly translating into savings on required volumes, logistics and storage costs, reducing water and additives requirements, and allowing easier and faster completions cleanup and remediation times.

## Long-term conductivity and permeability

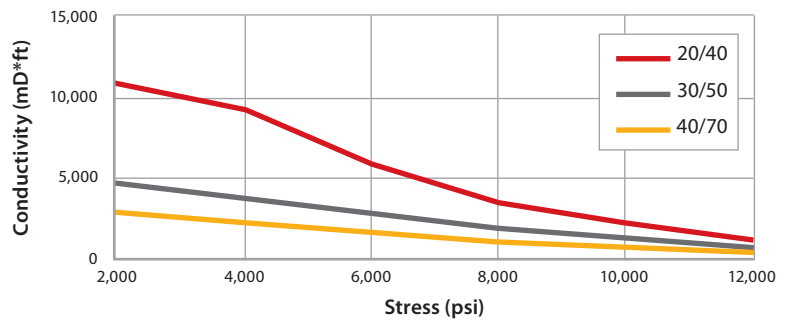
Reference conductivity, md-ft @250°F (121°C), 2 lb/ft<sup>2</sup>

Stress (psi)	20/40	30/50	40/70
2,000	11,300	4,900	2,570
4,000	9,100	3,800	2,070
6,000	6,200	2,950	1,750
8,000	3,650	1,950	1,380
10,000	2,010	1,300	930
12,000	1,005	650	570

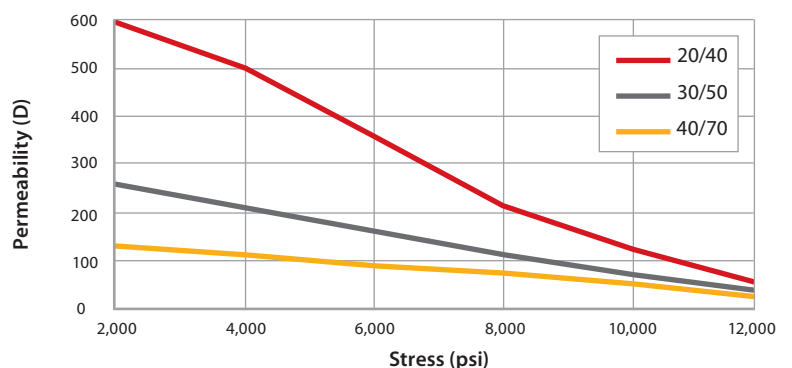
Reference permeability, md-ft @250°F (121°C), 2 lb/ft<sup>2</sup>

Stress (psi)	20/40	30/50	40/70
2,000	600	260	135
4,000	500	209	110
6,000	353	166	95
8,000	215	113	77
10,000	122	78	53
12,000	64	41	34

Long-term conductivity



Long-term permeability



Reference conductivity and permeability are measured with a single phase fluid under laminar flow conditions in accordance with API RP 19D. In an actual fracture, the effective conductivity will be much lower due to non-Darcy and multiphase flow effects. For more information, please refer to SPE Paper #106301 - "Determining Realistic Fracture Conductivity and Understanding its Impact on Well Performance –Theory and Field Examples."

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## Physical and chemical properties

### Typical sieve analysis (weight % retained)

US Mesh	Microns	12/18	16/30	20/40	30/50	40/70
+12 mesh	1700	4				
-12+16 mesh	-1700+1180	91	5			
-16+20 mesh	-1180+850	5	93	7		
-20+30 mesh	-850+600		2	90	4	
-30+40 mesh	-600+425			3	90	2
-40+60 mesh	-425+250				6	90
-60+70 mesh	-250+212					8
<b>Median particle diameter (µm)</b>		1374	1001	730	522	334
<b>API crush test % by weight fines</b>	<b>@10,000 psi</b>	15.2	9.0	3.6	2.0	2.0
<b>API K-factor</b>	<b>[kpsi]</b>	6	10	12	17	19

Sizing requirements: a minimum of 90% of the tested sample should fall between the designated sieve sizes. These specifications meet the recommended practices as detailed in API RP 19C.

### Typical additional properties

Roundness	0.9
Sphericity	0.9
Bulk density (lb/ft <sup>3</sup> )	96
(g/cm <sup>3</sup> )	1.56
Apparent specific gravity	2.70
Absolute volume [gal/lb]	0.044
Solubility in 12/3 HCl/HF acid (% weight loss)	1.5

All data represent typical values.

Talk to CARBO to find out how we can help you enhance your production.

[carboceramics.com](http://carboceramics.com)

**CARBO**

Production. Enhanced.