

IMERY'S Propynite®

Rod Shaped Proppant: *Beyond the Sphere*

GREATER conductivity.

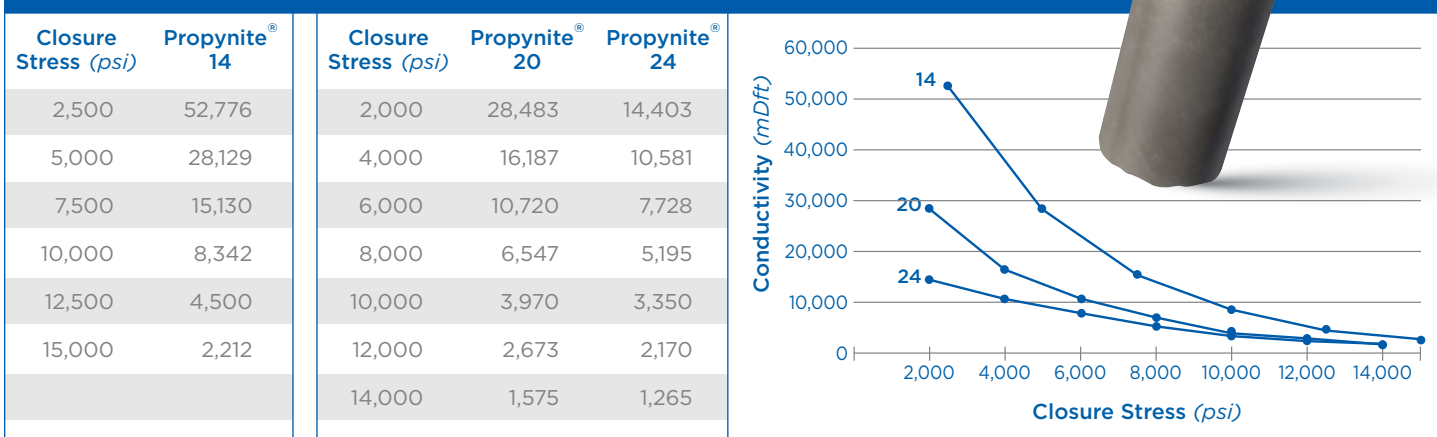
SUPERIOR flowback control.

PROVEN in the field.

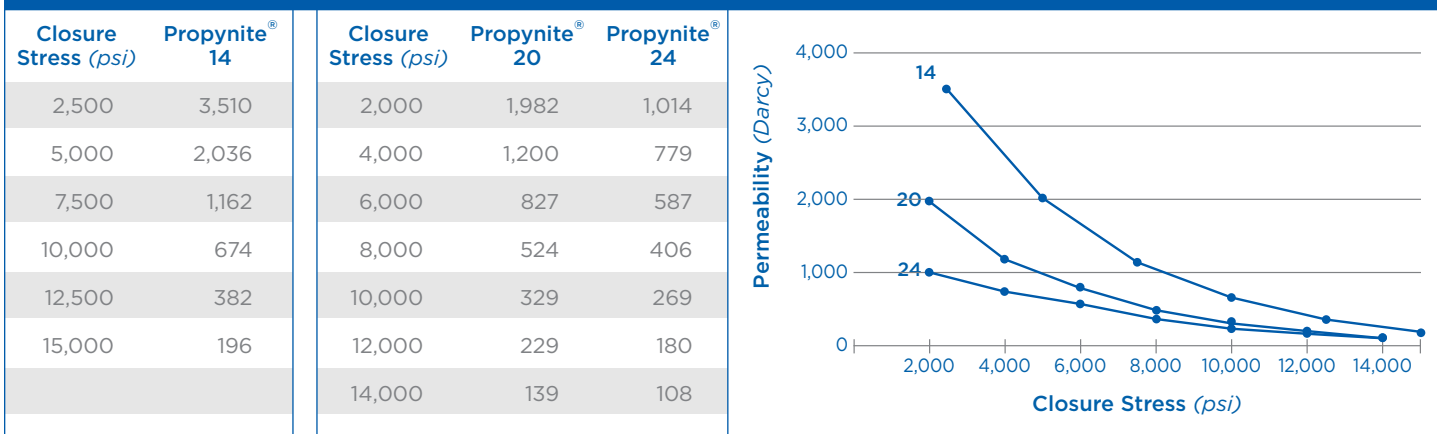
*Superior Performance
You Can Trust For
Your Unconventional
Challenges*



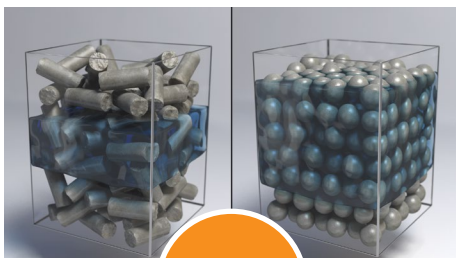
Baseline Conductivity* | 2lb/ft² - 250°F - 2% KCl Water - Ohio Sandstone



Baseline Permeability* | 2lb/ft² - 250°F - 2% KCl Water - Ohio Sandstone



* Conductivity and Permeability testing completed per API RP 19D / ISO 13503-5 specification. All data measured by third party independent test laboratory in 2014.



Greater Porosity



Superior Flowback Control



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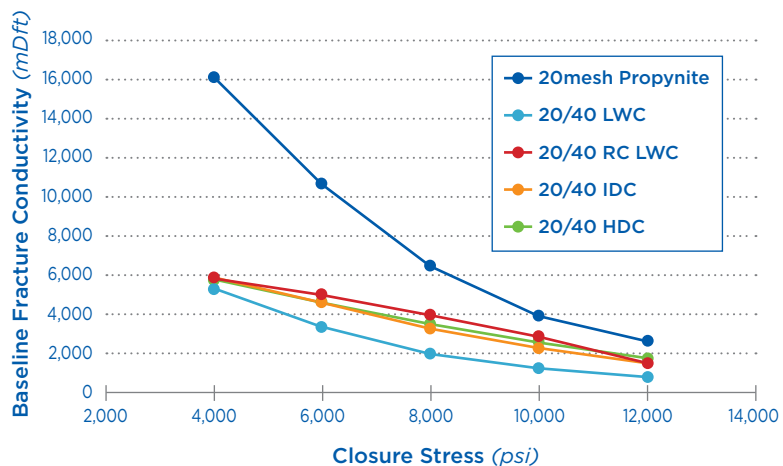
PERFORMANCE of IMERYS Propynite®

Rod Shaped Proppant: *Beyond the Sphere*

Propynite Performance versus Typical Technology*



Baseline Fracture Conductivity for Propynite 20 vs Conventional Ceramic Proppant



Typical Size Distribution of IMERYS Propynite®

	Propynite® 14	Propynite® 20	Propynite® 24
Average Rod Length (mm)	2.40 - 3.00	1.50 - 2.10	1.25 - 1.85
Nominal Rod Diameter (mm)/Mesh	1.45 / 14	1.00 / 20	0.85 / 24

API/ISO Crush Test (% by weight fines generated)

Closure Stress	Propynite® 14	Propynite® 20	Propynite® 24
@ 10,000 psi	8.7	5.0	3.2
@ 15,000 psi	18.1	10.3	8.0



Typical Additional Properties of IMERYS Propynite®

Bulk Density (lb/ft ³)	130 ± 5
Bulk Density (g/cc)	2.1 ± 0.1
Absolute Specific Gravity (g/cc)	3.6 ± 0.1
Absolute Volume (gal/lb)	0.033
Solubility in 12/3 HCl/HF Acid (% weight loss)	<4%

* Tested by FracTech Ltd. Between Ohio Sandstone at 250°F with 2% KCl.



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