

# ALPHA FRICTION REDUCER™ 1

Friction Reducer  
ALPHA-1

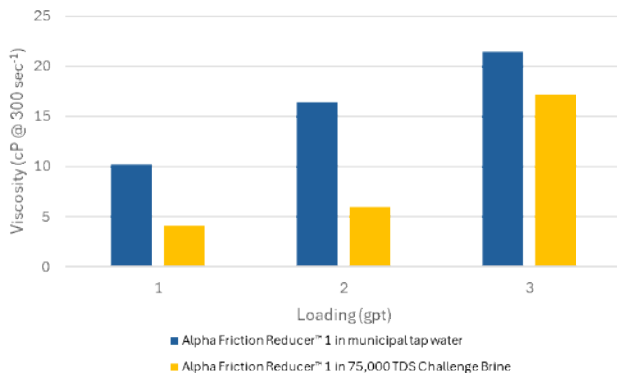
## DESCRIPTION

Alpha Friction Reducer™ 1 is a high viscosity anionic copolymer designed for use in hydraulic fracturing. Higher viscosity allows for the placement of sand schedules with much more aggressive increases in proppant loading, allowing for more efficient completions. Higher viscosity helps carry proppant into the formation allowing for further stimulation than with conventional slickwater friction reducers. Pressure creep in hydraulic fracturing is a costly issue. This can produce problems such as:

1. Screen-outs and flushing out proppant from the well to continue
2. Failure to place proppant according to design reducing increased reservoir flow
3. Time loss from retesting surface and downhole equipment for safety pressure needs due to high pressure
4. Increased wear on surface pumping equipment Virtually no unconventional well can be completed without the use of friction reducing polymers. These additives reduce pressure and improve flow dynamics for proppant carrying fluids.

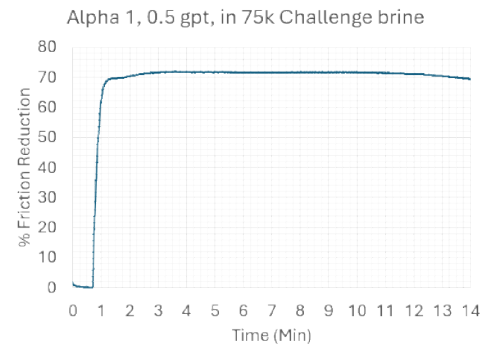
## APPLICATION

Alpha Friction Reducer™ 1 has higher performance than emulsion based friction reducers on the market. Alpha 1 will give equivalent or better performance at dosages 10–30% below other FR products. Alternatively, at full equivalent dosage a reduction of pumping time between 10–30% can be achieved as well if sand concentrations are increased. As all formations and well configurations vary, it is recommended to run toe stages at full equivalent concentrations when starting fracturing operations.



Viscosity of Alpha Friction Reducer™ 1 in Houston municipal tap water and 75k ppm challenge water, with 1,800 ppm of calcium

Alpha Friction Reducer™ 1 is a stabilized slurry friction reducer, which gives certain considerations. Alpha 1 should be pumped with a progressive cavity (PC) style pump, preferably. Care must be taken to not expose Alpha 1 to water before being pumped for the fracturing job, which includes the recommendation of one-way valves. Alpha 1 can be delivered to location either via bulk ISO containers or totes. AET can deliver via VAC trucks directly into ISO containers on location. It is recommended that the product is circulated once every two weeks if allowed to sit without agitation during that same timeframe.



Friction reduction results for Alpha Friction Reducer™ 1 in 75,000 ppm TDS water, including 1,800 ppm of calcium at 0.5 gpt dosage.

## PROPERTIES

Color	Tan/Off-white
Form	Slurry/Suspension
Density	1.10±0.25 lbs/gal
Viscosity (300 sec <sup>-1</sup> )	83–165 cP
Suspension Stability	Up to 135°F1
Pour Point	32°F
Flash Point	>200°F
Ionic Charge	Anionic
Water Range	Fresh – 160K TDS2

1 In the case of any visible separation, circulating through the container will remove this effect.

2 Up to 163K TDS compatibility has been observed for Alpha 1, however multivalent cations such as calcium, magnesium, and iron can affect Alpha 1's performance. A flow loop test using source waters is recommended prior to operations to ensure performance when total dissolved solids (TDS) increase past 80K

*Additional Information*

Reach out to your AET sales professional today for more information, samples, and other high-performance products.



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