



# FRICTION REDUCER

ALPHA-2

## Description

Alpha Friction Reducer 2 is a high viscosity anionic copolymer slurry designed for use in hydraulic fracturing in fresh to mildly briny water sources. 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.

## Application

Pressure creep in hydraulic fracturing is a costly issue. This can produce problems such as:

1. Screenouts 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

Unconventional wells require friction reducing polymers to save cost and wear on equipment and pipelines. These additives reduce pressure and improve flow dynamics for proppant carrying fluids.

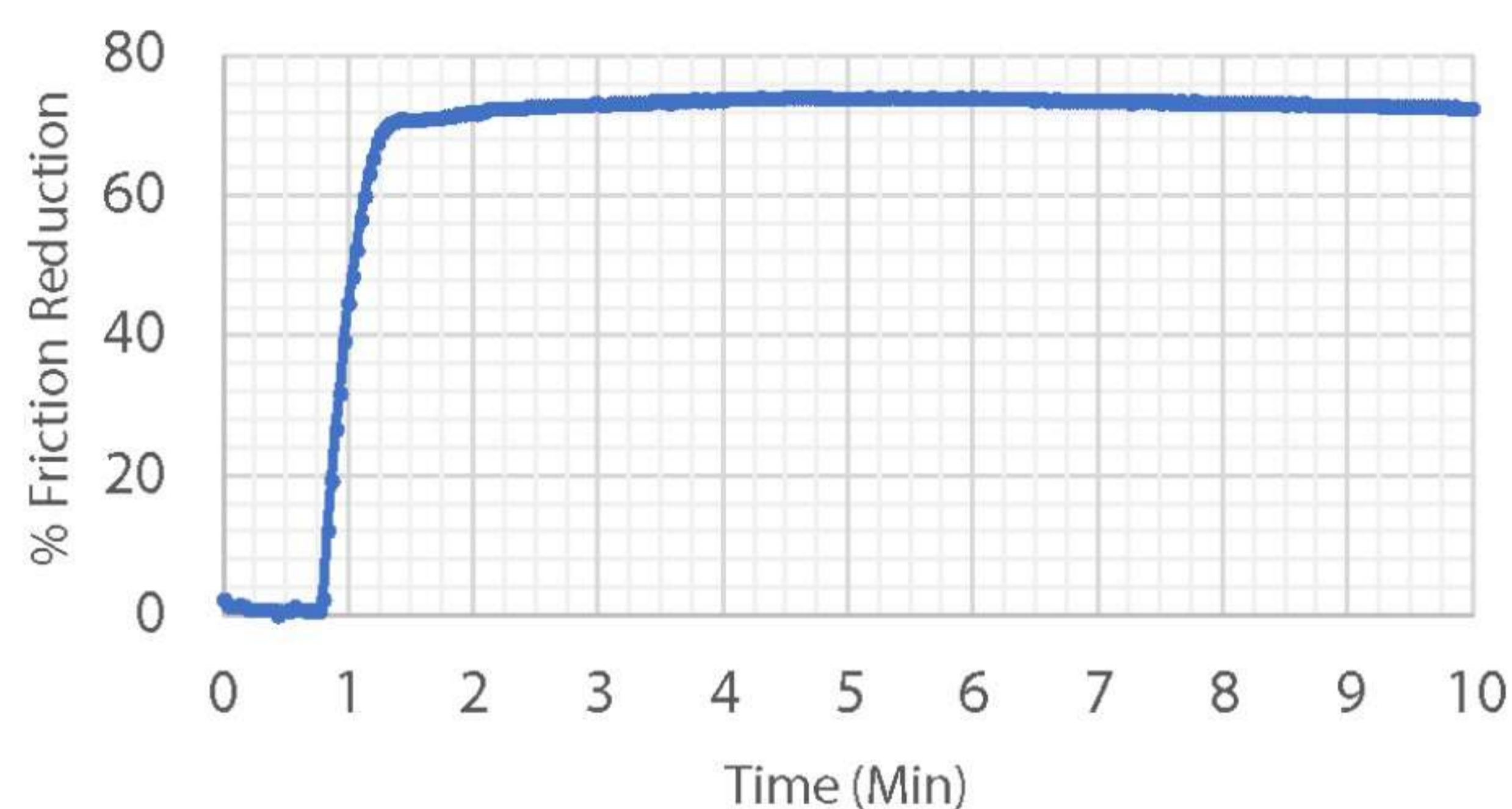
Operational considerations. Alpha 2 has higher performance than most anionic emulsion based friction reducers on the market. Alpha 2 will give equivalent or better performance at dosages 10-20% below other FR products. As all formations and well configurations vary, it is recommended to run toe stages at full equivalent concentrations when starting fracturing operations.

Alpha 2 is a stabilized slurry friction reducer, which gives certain considerations. Alpha 2 should be pumped with a progressive cavity (PC) style pump, preferably. Care must be taken to not expose Alpha 2 to water before being pumped for the fracturing job, which includes the recommendation of one-way valves. Alpha 2 can be delivered to location either via bulk ISO containers or 275 gallon totes. Please contact Alpha Energy Technologies for other container size options.

## Additional Information

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

20.75 GPT Alpha Friction Reducer™ 2  
20K Challenge Water

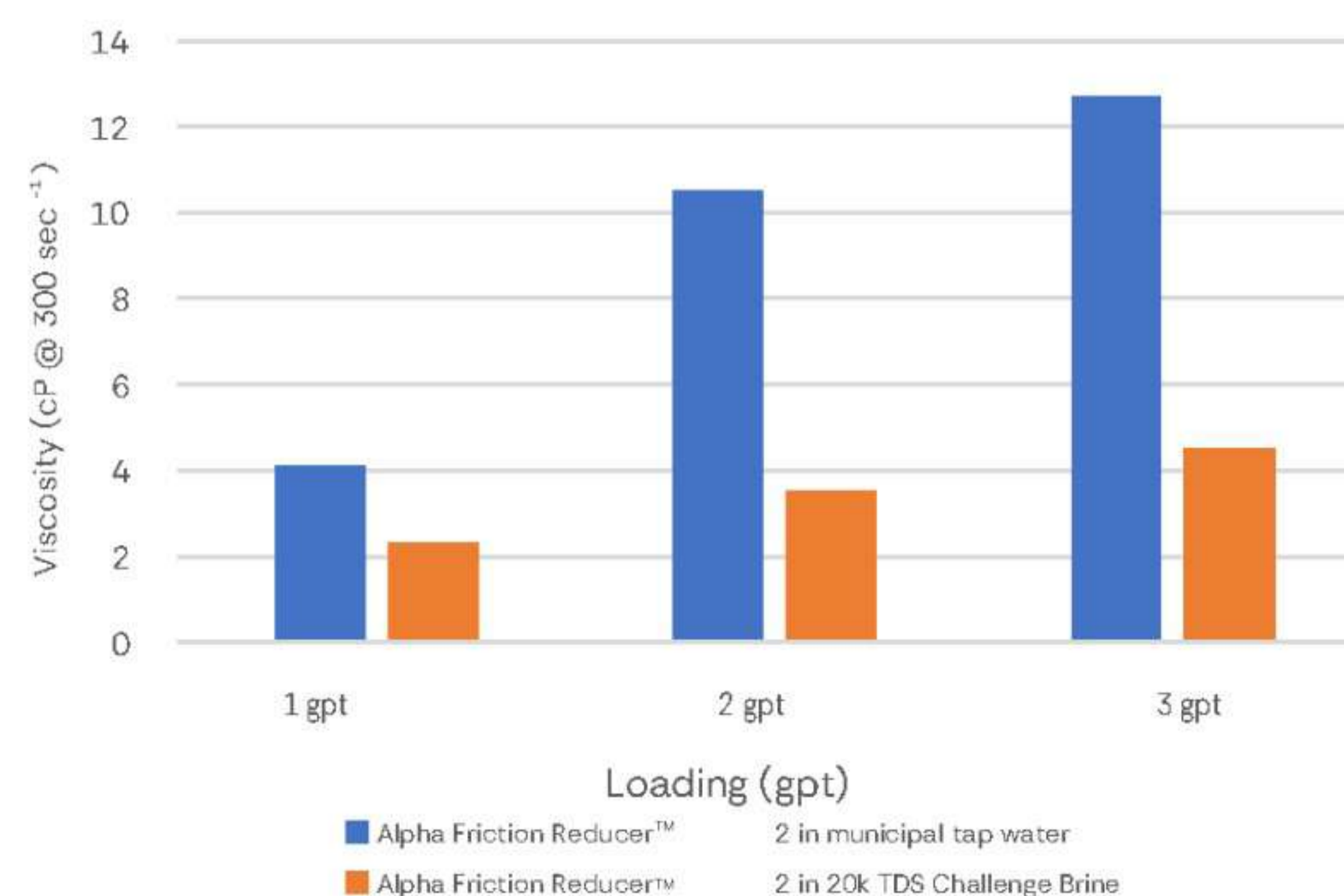


Friction reduction results for Alpha Friction Reducer™ 2 in 20,000 ppm TDS water, including 500 ppm of calcium, at 0.75 GPT loading

## Properties

Color	Tan/Off-white
Form	Slurry/Suspension
Density	8-9 lbs/gal
Viscosity	100-200
Suspension Stability	Up to 135°F1
Pour Point	32°F
Flash Point	>200°F
Ionic Charge	Anionic
Water Range	Fresh – 60K TDS2

<sup>1</sup> In the case of any visible separation, recirculating through the container will remove this effect. It is recommended that product is circulated once every two weeks if not used at all. <sup>2</sup> Up to 60K PPM TDS is compatible for Alpha 2, however high concentrations of multivalent cations such as calcium, magnesium, and iron will affect Alpha 2's performance. A flow loop test using source waters is always recommended prior to operations to ensure performance via testing when total dissolved solids (TDS) increases past 60K is expected or could be present.



Alpha Friction Reducer 2 viscosity in different water sources. Houston tap water (<1,500 ppm TDS) in blue, 20k challenge water (with 500 ppm CaCl<sub>2</sub>) in orange. Measurements taken on a Fann 35 with an R1B1 configuration after 5 minutes of hydration.

