

## PAFR-917

Friction Reducer – High and Ultrahigh TDS Brines  
 High Viscosity Friction Reducer – High TDS Brines

### Product Description

PAFR-917 is an anionic, concentrated slurry-based friction reducer, featuring high AMPS content, designed for on-the-fly addition to aid in reducing drag during hydraulic fracturing operations. PAFR-917 is a polyacrylamide with a high molecular weight, and high charge. PAFR-917 is designed for high to ultra-high salinity brines, with an optimum dose rate ranging from 0.4-0.6 gpt (0.4-0.6L/m<sup>3</sup>).

PAFR-917, aside from its role in reducing pipe friction during fracturing treatments, contributes to enhanced viscosity when combined with fracturing fluids. This, in turn, yields various benefits such as enhanced proppant transportation, operational ease due to reduced water use and increased proppant concentration, and streamlined logistics with fewer chemicals needed on-site. For scenarios demanding viscosity augmentation in high brine waters, the suggested PAFR-917 dose rate is 3.0-5.0 gpt (3.0-5.0 L/m<sup>3</sup>).

### Features

- Unique FR technology designed to handle fresh to ultra-high brine levels
- Effective at low concentrations 0.4-4.0 gpt (0.4-4.0 L/m<sup>3</sup>) reducing the friction pressures by 70%
- Easily dispersed in water under low shear conditions
- Rapid hydration allows for mixing on-the-fly operations
- Allows increased pump rates at lower treating pressures

### Application and Usage

The PAFR-917 additive is introduced directly into the stimulation fluid using an on-the-fly application approach. The customary application range spans from 0.4 to 5.0 gpt (0.4 to 5.0 L/ m<sup>3</sup>).

### Physical Properties

Appearance	Liquid
Odor	Tan
Specific Gravity	Anionic
Ionic Character	1.05
Freeze Point	N/A
pH	7.08 (0.5% Solution in DI Water)
Solubility	Soluble in Water

### Limitations and Incompatibilities

Lab testing should be conducted when used with cationic additives.

### Safety and Handling

Due to factors like flammability, toxicity, or other relevant considerations, appropriate precautions might be necessary when handling or utilizing the product mentioned in this document. Safety Data Sheets, outlining the required precautions for product handling, application, and storage, can be obtained from SingleTrack Solutions.

## Availability

PAFR-917 is available in totes, and bulk.

## Technical Data Sheet

## Product Performance

### Friction Flow Loop Data

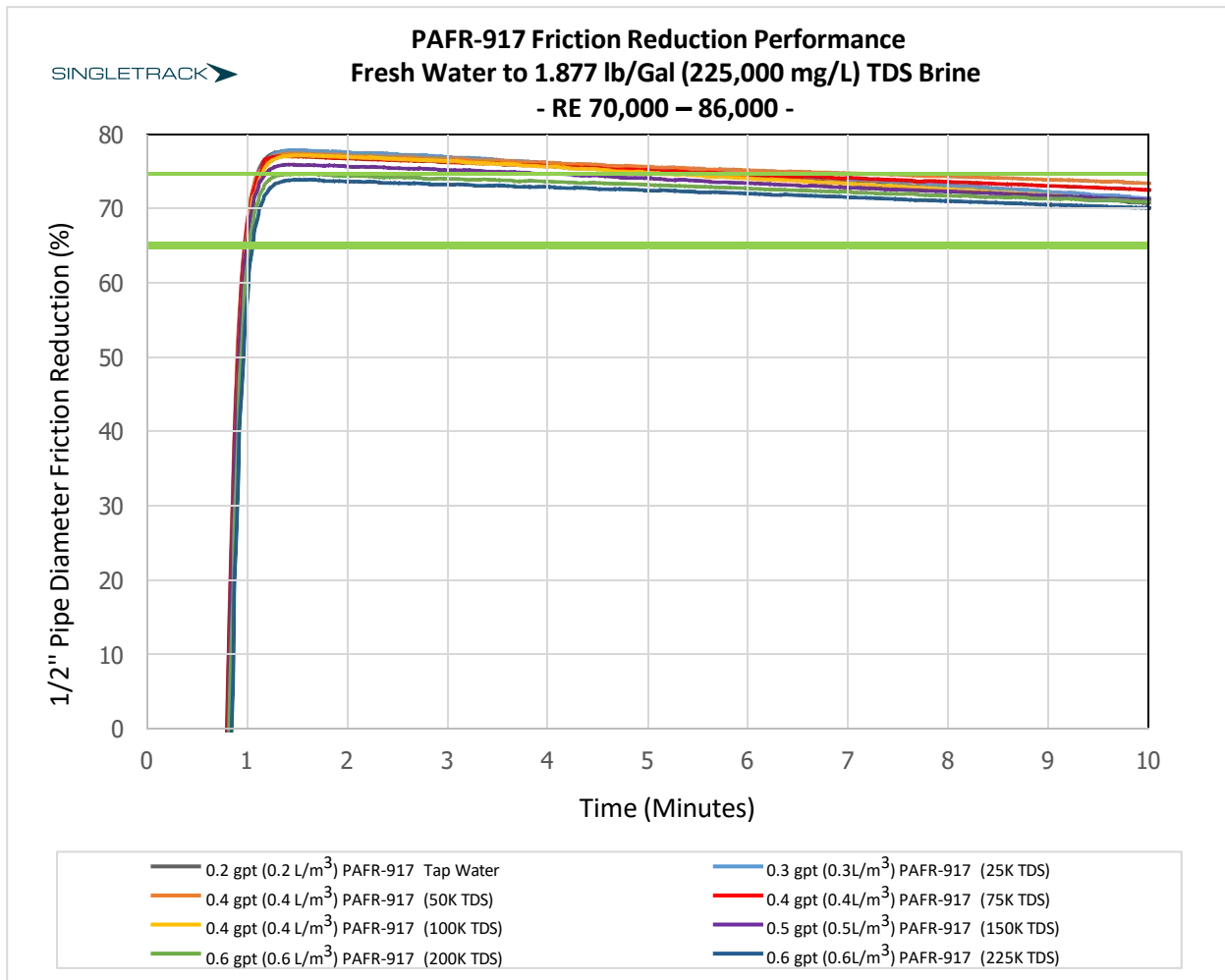


Figure 1. PAFR-917 Percent Friction Reduction in Fresh, Flowback and Produced Waters\*  
 (\* Ametek Chandler Friction Flow Loop Model 6500)

**Rheology Data**

Table 1: PAFR-917 Rheology Data

Shear Rate, sec <sup>-1</sup>	PAFR-917 at 1.0 gpt (1.0 L/m <sup>3</sup> )	PAFR-917 at 2.0 gpt (2.0 L/m <sup>3</sup> )	PAFR-917 at 3.0 gpt (3.0 L/m <sup>3</sup> )	PAFR-917 at 4.0 gpt (4.0 L/m <sup>3</sup> )	PAFR-917 at 5.0 gpt (5.0 L/m <sup>3</sup> )
1.7	34.6	38.9	56.7	77.4	99.9
5.1	15.4	19.1	21.9	31.1	38.9
10	9.7	11.8	13.7	17.1	27.2
102	4.0	6.2	8.5	10.2	16.1
170	3.3	6.0	7.8	9.7	14.8
511	3.0	4.9	7.4	8.9	14.0
1022	2.7	4.5	6.5	8.0	13.0

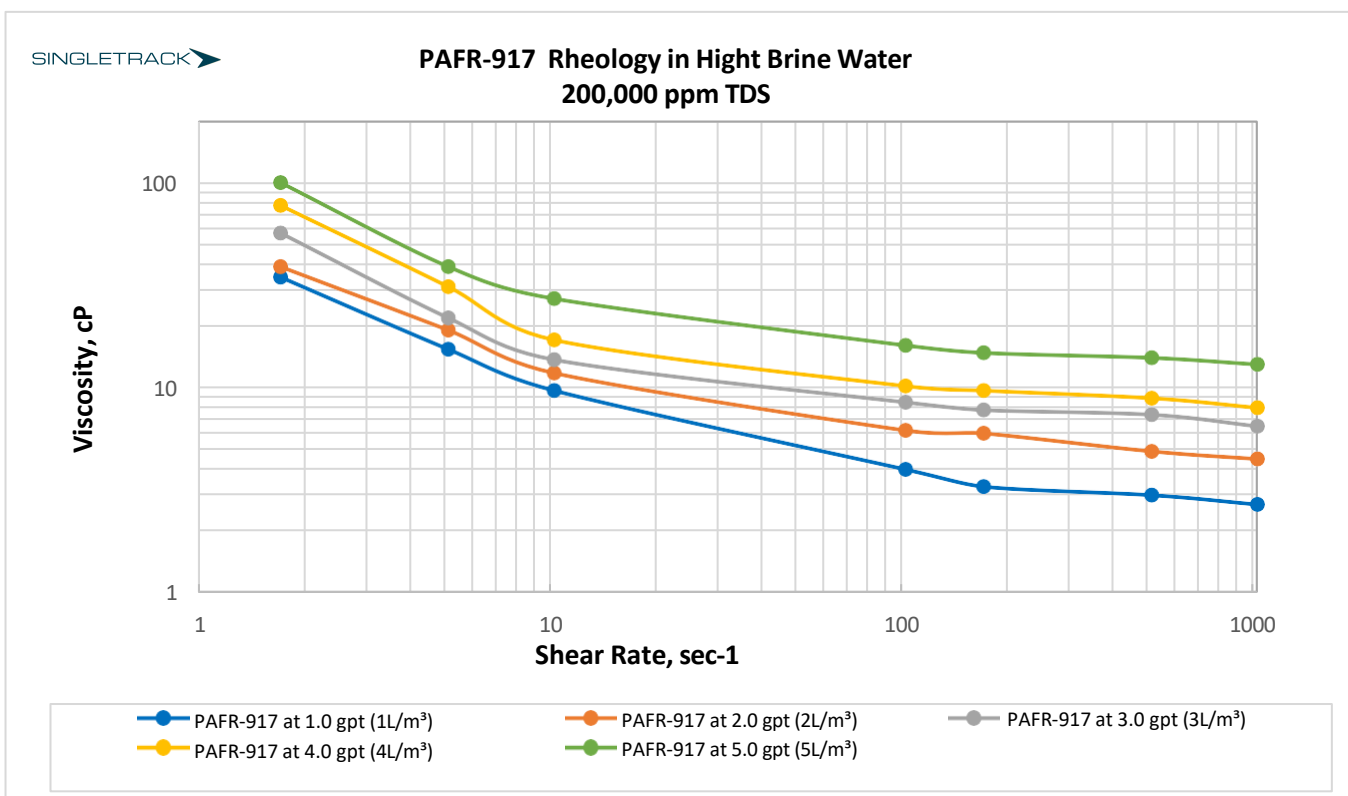


Figure 2. PAFR-917 Rheology Data in 200,000 TDS Brine  
(\*Viscometer Model Ofite 900 R1B1 Configuration)