TruSlick A

Next Generation Anionic Friction Reducer for Hydraulic Fracturing

PRODUCT DESCRIPTION

TruSlick A is a synthetic high molecular weight anionic polyacrylamide copolymer supplied in an easy-to-handle, liquid emulsion form. TruSlick A employs the latest advances in emulsion technology to deliver market leading friction reduction and sand placement performance in slickwater fracturing fluids. TruSlick A has better proppant placement than any other Anionic emulsion FR on the market. It has been run in the field in as heavy as 6# per gallon sand.

APPLICATION

TRUSLICK A is a high viscosity anionic synthetic polymer that is effective as a friction reducer in fresh water and various brines and in KCL, and has been widely used.

- As a friction reducer for fresh water & brine applications
- Product is used in fresh water to 150K TDS
- As a thickener for fresh water or brines in completions or work over operations
- Superior, long term suspension stability
- Rapid polymer hydration
- Suspension flows readily, even in severe winter conditions
- Compatible with anionic FR and nonionic additives

TYPICAL DOSAGE

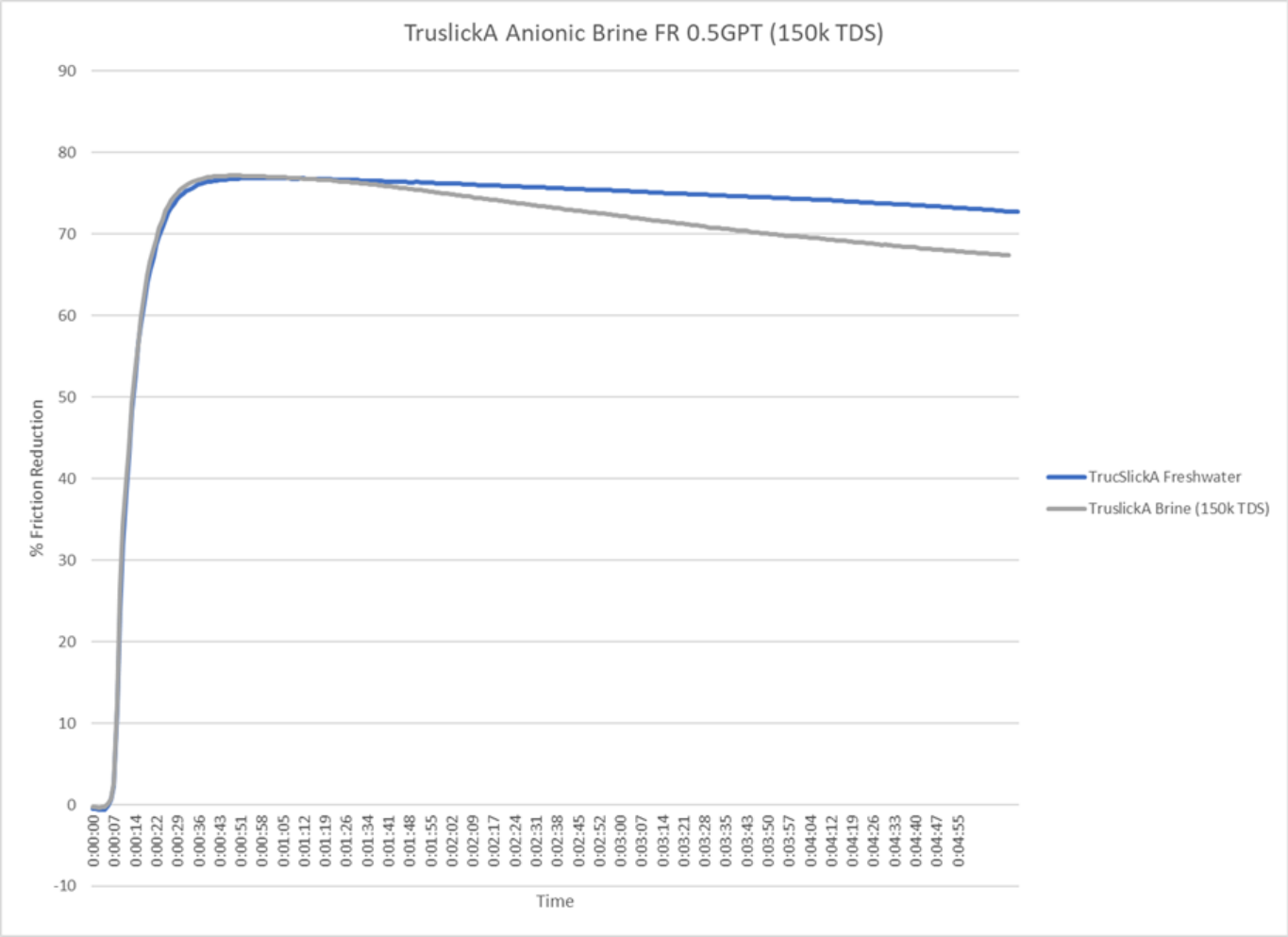
Dosage requirements for TRUSLICK A range from 0.25 to 2.0 gallons per 1,000 gallons of frac fluid.

COMPATIBILITY

TRUSLICK A is compatible with all anionic and nonionic additives that may be present in the frac fluid.

TYPICAL PROPERTIES

Appearance	Opaque Liquid
Ionic Character	Anionic
Density	8.8 lb./gal.
Storage Temperature*	32 - 95 °F
Pour Point**	-33°C (-27.4 °F)


TruslickA Anionic Brine FR 0.5GPT (150k TDS)
% Friction Reduction
90
80
70
60
50
40
30
20
10
0
-10
0:00:00
0:00:07
0:00:14
0:00:22
0:00:29
0:00:36
0:00:43
0:00:51
0:00:58
0:01:05
0:01:12
0:01:19
0:01:26
0:01:34
0:01:41
0:01:48
0:01:55
0:02:02
0:02:09
0:02:17
0:02:24
0:02:31
0:02:38
0:02:45
0:02:52
0:03:00
0:03:07
0:03:14
0:03:21
0:03:28
0:03:35
0:03:43
0:03:50
0:03:57
0:04:04
0:04:12
0:04:19
0:04:26
0:04:33
0:04:40
0:04:47
0:04:55
Time
TrucSlickA Freshwater
TruslickA Brine (150k TDS)

PRODUCT PERFORMANCE

TruSlick C vs Industry Leading Emulsion FR A

Sand bed growth rate:

TruSlickC: 0.273 mm/s; FR A: 0.466 mm/s

Sand settling rate:

TruSlickC: 3.97 mm/s; FR A: 6.78 mm/s (TruSlick C is 60% of FR A)

Sand settling predictor: average reciprocal viscosity

1 gpt TruSlickC: 0.14

1 gpt FR A: 0.21

Based on rheology, settling velocity in TruSlickC is predicted to be 67% of that in FR A

TruSlickC Fluid Break Testing

TruSlickC	Water	Test Time	Water Bath Temp	Initial Baseline Viscosity	Post-Batch Viscosity	Post Bath w/0.5# raw APS
1 gpt	Tap	2 hrs	160 F	3.6 cP	1.1 cP	1.0 cP
2 gpt	Tap	2 hrs	160 F	7.6 cP	0.9 cP	0.9 cP
3 gpt	Tap	2 hrs	160 F	11.1 cP	0.9 cP	0.9 cP
4 gpt	Tap	2 hrs	160 F	14.2 cP	0.9 cP	0.9 cP

Ofite 900 R1B1 @ 300 rpm