

PRODUCT DATA SHEET

Friction Fighter-HB-S

---An ANIONIC POWDERED FRICTION REDUCER ADDITIVE---

GENERAL INFORMATION

Friction Fighter-HB-S is a powdered, high molecular weight polyacrylamide copolymer used to reduce friction pressure in pressure pumping applications. This product is >90% active as opposed to typical polyacrylamide emulsions or slurries that are 15-60% active. This translates into a potentially significant cost savings over standard FR products.

PRINCIPLE USES

When Friction Fighter-HB-S is added to water in low concentrations, it reduces the friction pressure associated with high flow rates. This enables higher flow rates to be achieved, particularly in slickwater or coiled tubing applications. Friction Fighter-HB-S is effective in brines up to 200,000 TDS.

PROPERTIES

Appearance	White Powder
Particle Size	95% through 100 Mesh
Ionic Charge:	Anionic

LOADING AND DOSAGE

Recommended dosage levels are 0.75-4.0 ppt in water. A load rate of <2.5 ppt of Friction Fighter-HB-S will be equivalent to 1 gpt of most standard PAM emulsion FRs. For optimum performance, this product must be dispersed thoroughly before pumping downhole. High shear mixing equipment is recommended.

Fig 1. Friction Fighter-HB-S Flow Loop Performance in Various Water at 2-2.6 ppt Loadings

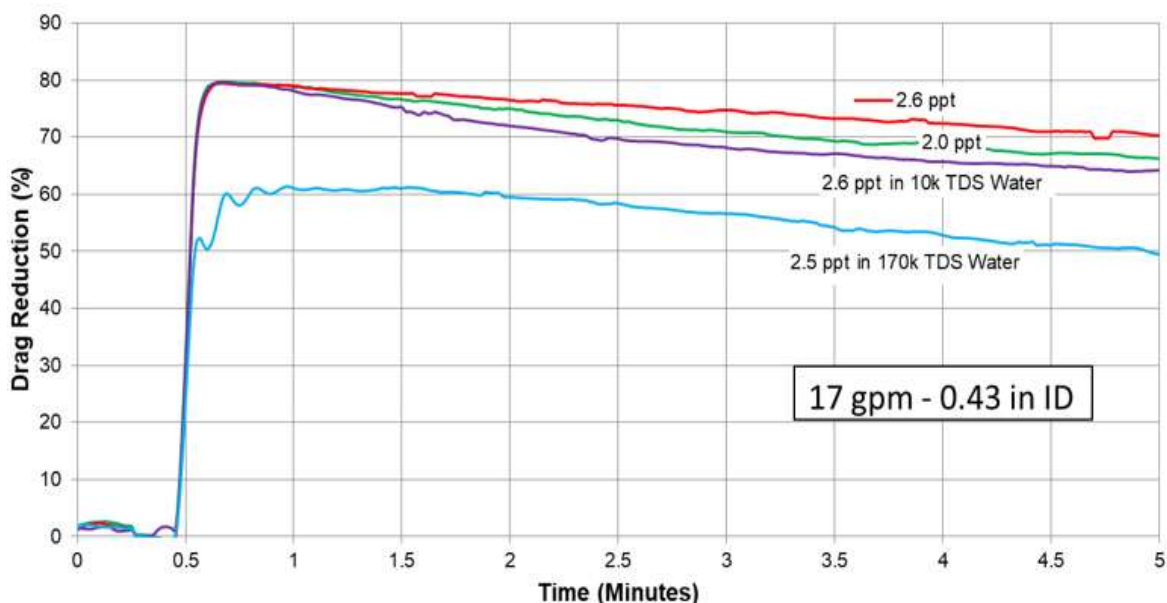


Fig 2. Friction Fighter-HB-S Flow Loop Performance in 170k TDS Water at Various Loadings

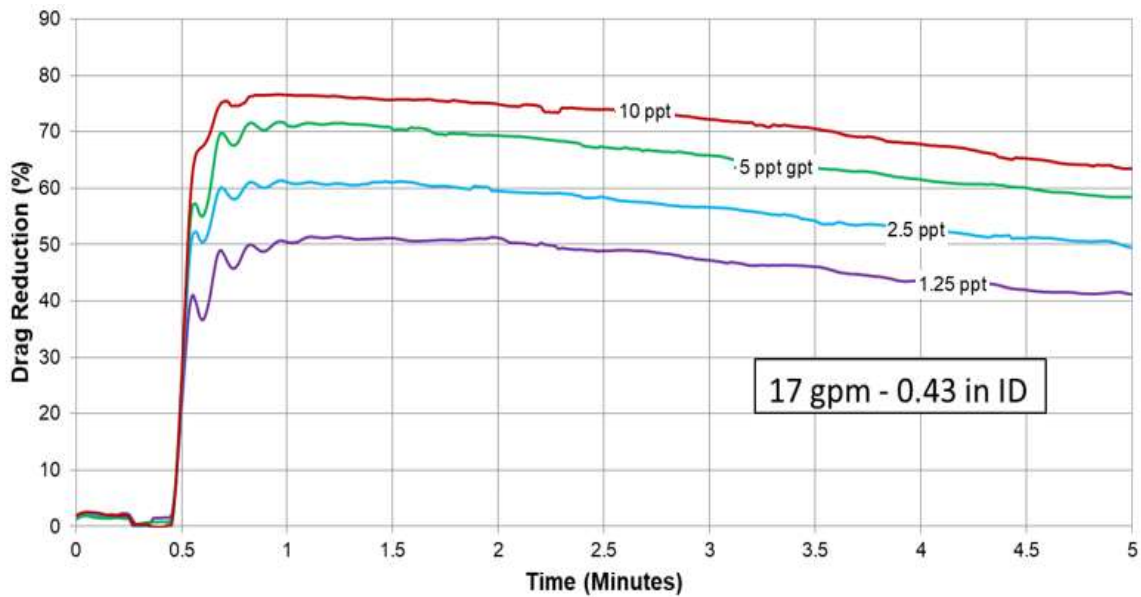
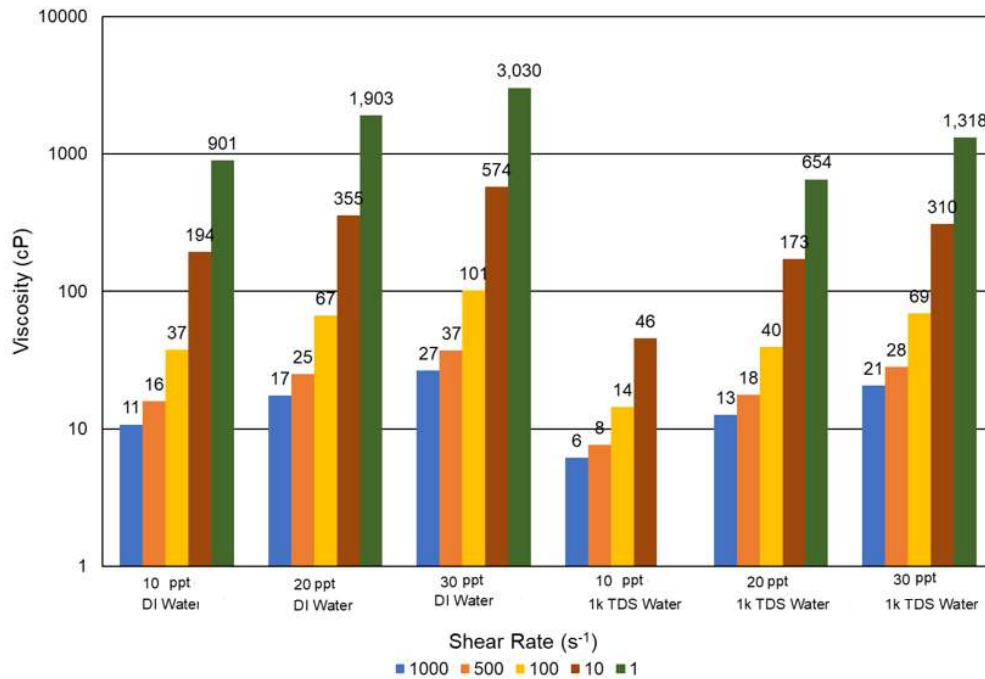


Fig 3. Friction Fighter-HB-S Viscosity Profiles in DI and 1k TDS Water



STORAGE

Friction Fighter-HB-S should be kept in cool, dry conditions to keep from absorbing water from the atmosphere over time. The package should be kept closed when not in use. Keep this product away from moisture.

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