Dry Friction Reducer
High fracturing performance with improved logistics and HSE footprint

Temperature:
Recommended range of 45–350 degF

Where it is used
High-rate slickwater and viscous slickwater fracturing operations with freshwater or other mix waters with up to 250,000-ppm total dissolved solids (TDS)

How it improves operations
■ Reduces polymer loading requirements for equivalent or better fracturing performance as compared with liquid friction reducer (FR)
■ Simplifies logistics and reduces HSE footprint by eliminating petroleum distillates and risk of liquid spillage
■ Eliminates concerns about freezing, separation, and recirculation

How it works
Solid polyacrylamide-based product rapidly hydrates in waters ranging from freshwater to high-brine produced water

What it replaces
Liquid friction reducers

What else I should know
■ Uses conventional equipment from guar-based fracturing operations
■ Typical concentration: 1–5 lbm/1,000 galUS

Friction loop testing in freshwater at 72 degF in a 0.5-in pipe at 67 kg/min.

Drag reduction, %

Time, min

1-lbm/1,000 galUS dry friction reducer
2-lbm/1,000 galUS dry friction reducer
1-gal/US/1,000 galUS liquid friction reducer

Friction loop testing in brine (170,000-ppm TDS) at 72 degF in a 0.5-in pipe at 67 kg/min.

Drag reduction, %

Time, min

3-lbm/1,000 galUS dry friction reducer
1.5-galUS/1,000 galUS liquid friction reducer