

Terra Scale Inhibitor (TSI-1)

SUMMARY:

TSI-1 is designed to inhibit the formation of scale due to incompatibilities between formation fluids, stimulation fluids and frac chemistry. More specifically, TSI-1 effectively inhibits scale from forming out of barium Sulfate (BaSO_4), Calcium Sulfate (CaSO_4) and Calcium Carbonate (CaCO_3) brines. This cost-effective chemistry has been specifically designed for use with both slick water and crosslinked fluid systems. In addition to its compatibility with a wide range of frac fluids, TSI-1 is thermally stable while demonstrating high stability in concentrated brines and produced water.

ADVANTAGES:

- ◆ Chemically stable at elevated temperatures up to 180°C (356°F).
- ◆ Compatible with most anionic stimulation fluids.
- ◆ Residuals can be easily monitored at flowback and/or in produced water.
- ◆ Does not affect the friction reduction properties of anionic friction reducers.
- ◆ Stable scale inhibitor in the presence of oxidizers such as chlorine and bleach.
- ◆ Environmentally friendly product.



Figure 1. CaSO_4 decreases with increased concentration of TSI-1 (left to right: 0, 0.02, 0.05, 0.10, 0.20, 0.50 GPT).

MIXING & BLENDING INSTRUCTIONS:

- ◆ TSI-1 can be run on-the-fly during fracturing applications on the discharge side of the blender.

TECHNICAL LAB RESULTS:

Lab testing for TSI-1 was completed according to NACE test procedures. The results illustrated in the graph below demonstrate how TSI-1 retains ions in solution, successfully inhibiting scale formation across Barium Sulfate, Calcium Sulfate, and Calcium Carbonate.

