



# TouSlick Friction Reducer

## for Hydraulic Fracturing

**TouSlick FR-1 is a high-molecular weight friction reducer, designed to deliver excellent friction reduction performance in freshwater and brackish water. Key benefits are:**

- Excellent friction reduction up to 79%, reducing horse power requirements and costs
- Very fast inversion leads to maximum friction reduction within 20 sec
- Very good shear stability at high pumping rates
- Minimal degradation over time, allowing for best performance during pumping job

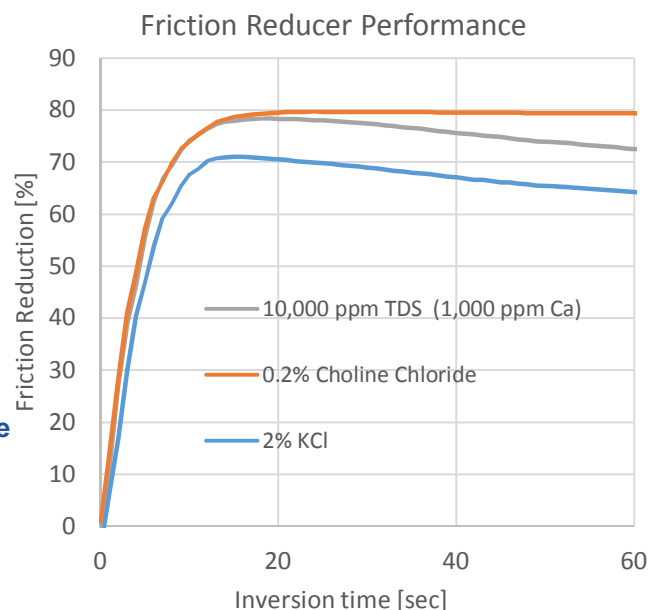
### TouSlick FR-1

TouSlick FR-1 is an anionic polymer emulsion. It is specifically engineered to provide excellent friction reduction performance in freshwater and brackish water. The **brackish water** may contain up to 10,000 ppm TDS including 1,000 ppm Calcium.

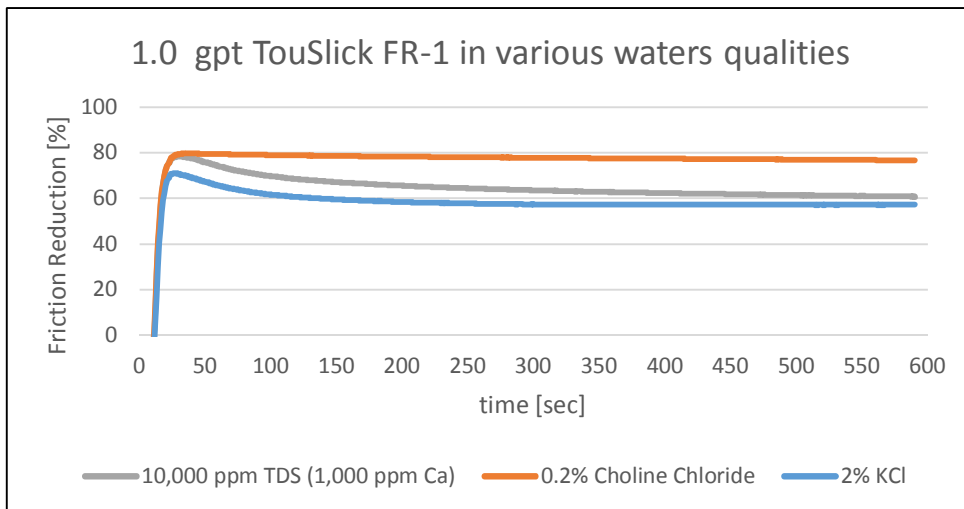
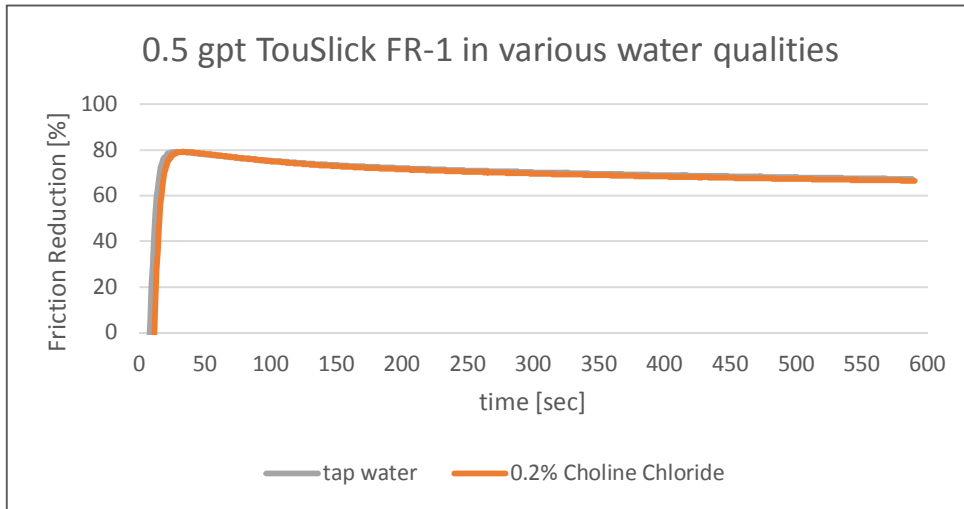
**Excellent fast hydration** delivers maximum friction reduction within a few seconds, **thereby reducing horse power requirements and related costs.**

The anionic nature of this friction reducer is **compatible with typical non-ionic and anionic additives** in frac fluids.

Depending on job requirements TouSlick FR-1 is used at rates of 0.25 to 1.0 gallons per thousand gallons.



Inversion time of 1.0 gpt TouSlick FR-1 in various water qualities in a 1/2" friction loop at 10 gpm



**Test conditions:** A 25 feet closed friction loop (10 feet test section) with ½" pipe was used. Tests were done with friction reducer loadings of 0.5 and 1.0 gallons per 1000 gallons in various water qualities at room temperature. Fluids were pumped at a rate of 10 gallons per minute.

## Recommended Use

Normal use rate is 0.25 to 1.0 gallon per thousand gallons.

Stir container prior to field deployment to ensure best performance of the product. Over time the product may settle down in the container and the formation of a small oil film might be observed. This is normal and does not affect product performance. Re-disperse by mechanical agitation. Do not use air-stirring, since the moisture in the air will cause hydration and lead to a high viscous mass.

Store at ambient temperature. For details please see MSDS.