



TouGas EP-5E

for Enhanced Oil Recovery

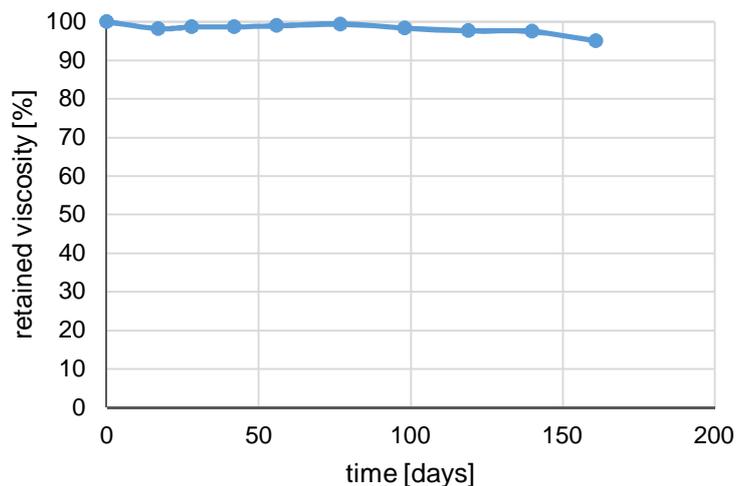
TouGas EP-5E is a high-molecular weight polymer, designed for excellent performance in polymer flooding at high temperature and in high salinity water. Key benefits are:

- Compatible with high salinity water with a TDS level of up to 200,000 ppm
- Excellent long term stability at temperatures up to 100°C / 212 °F
- Less polymer required to extract oil from the formation resulting in reduced cost for operator
- Very fast inversion allows for mixing on the fly, reducing equipment cost
- Excellent injectivity, resulting in low risk of formation damage and high well productivity

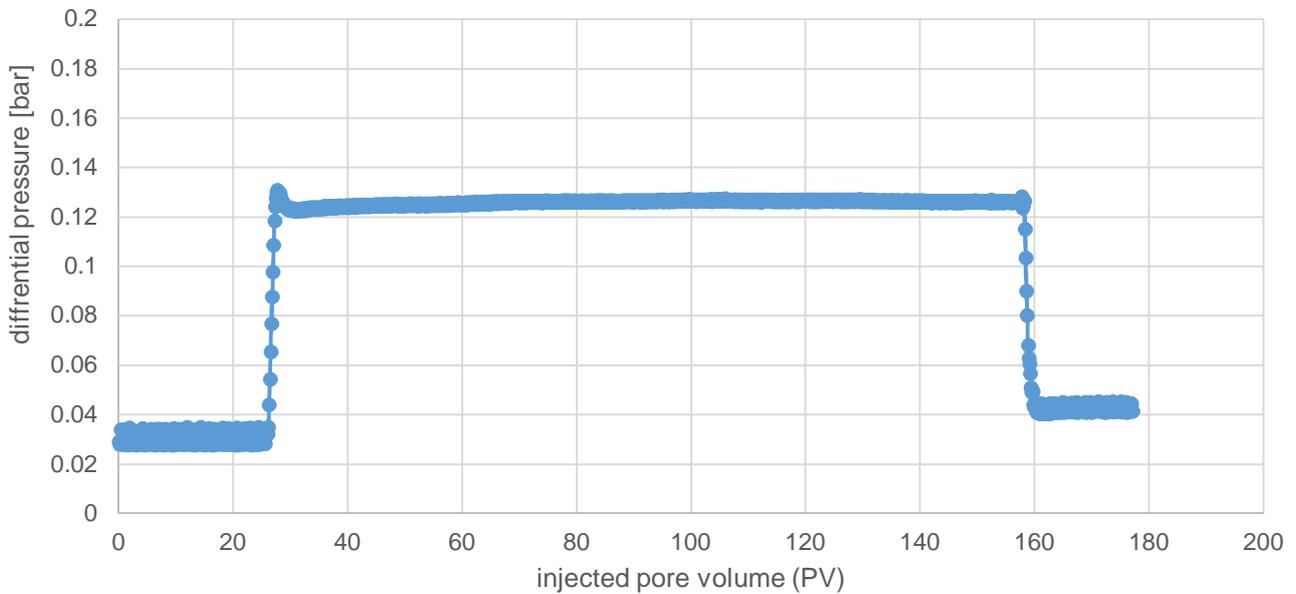
TouGas EP-5E

TouGas EP-5E is an anionic polymer emulsion. TouGas EP-5E is compatible with **high salinity water** up to a TDS level of **200,000 ppm** and shows **excellent long term stability up to 100 °C**. Thus a stable viscosity during the polymer flooding results in **exceptional oil recoveries with reduced polymer consumption and cost**.

Excellent fast hydration without formation of fish eyes allows for mixing **on the fly** resulting in reduced equipment cost especially for offshore applications. **No aging** of the solution is required.



Test conditions: 2,000 ppm active EP-5E polymer, 1,000 ppm surfactant, synthetic formation water (TDS 190,000 ppm), 85 °C / 185 °F, O₂ < 10 ppb



Test conditions: Porous sand pack with a length of 3.2 cm saturated with synthetic formation water (TDS 190,000 ppm) was used. Test was done with an active polymer loading of 2,000 ppm and 1,000 ppm surfactant. Flow rate during the test was 0.33 ml/min.

The proprietary manufacturing technology allows **control of molecular structure** delivering a unique performance profile.

TouGas EP-5E shows **excellent injectivity behavior** into porous sand packs. Constant pressure during injection proving **no accumulation of irreversible adsorbed polymer and blocking** of the sand pack.

TouGas EP-5E ideally displaces oil without the risk of formation damage due to permeability reduction.

Permeability sand pack	393 mD
Injectivity ratio (IR) after 20 PV	1.02
Injectivity ratio (IR) after 100 PV	1.02
R-Factor	4.39
RR-Factor	1.42
Viscosity Polymer Solution, 25 °C, 10 s ⁻¹	5.17 mPa*s