The KDP Is On Fire, 450F

Background

The KDP is on fire, increasing sales annually, along with its high performance in record high scorching bottom hole temperatures. An operator in the Haynesville area reached out to Kureha Energy Solutions (KES) requiring a reliable 10k dissolvable frac plug that can degrade in their harsh wellbore conditions for their plug-and-perf frac operations. The operator requested to run the Kureha Degradable Frac Plug (KDP) in a full wellbore application at 450°F. The highest BHST prior to this application for the KDP was 415°F.

KDP Design

The KDP is designed to eliminate the risk of costly plug mill-out operations. It is manufactured from the industry's original degrading material that is field tested and highly suitable for frac plug material. The KDP hybrid design includes the degradable polymer (Polyglycolic acid, PGA) and dissolvable sealing element that predictably degrade to provide a clear wellbore for production without intervention and assist in reaching longer laterals that coil tubing cannot reach.

The degradation behavior of PGA and the degradable sealing element is much simpler than 100% Mg alloy frac plugs. PGA is temperature dependent only, whereas Mg alloy degradation depends on temperature, chloride level, and can be affected by other well conditions, such as buried in sand or covered by other fluids. The KDP can degrade in all water types, oil, water moisture, and sand.

Operators are frequently impressed with the plug's frac performance. The KDP's dual slip design and traditional full-length sealing element provides exceptional sealing performance in wells with harsh environments, such as casing deformation, high temperatures, and high differential pressures.

KDP Design

The 3.74" KDP was run full wellbore in 5.0" 21.4# casing. No problems were reported or seen during the frac operations in the high temperature wells, and the operator was very pleased with the KDP performance. After frac, the operator soaked the KDP's for 4 days. The operator conducted a cleanout and no tags or plug parts were reported or recovered during the cleanout. The well produced successfully with no debris problems.

The results of this trial are a good example of the great frac performance and stable degradation of the KDP. PGA based degradable plugs perform and degrade stably under a variety of conditions. PGA degradation does not stop, even in the conditions that have less liquid water or have a lot of sand. With the record high well temperatures and increase in sales, the KDP is truly on fire. Please contact KES for more information in regards to your frac plug solution today.

KDP Features

- PGA based plug
- Traditional Frac Plug Design
  - Dual Slips
  - Large Sealing Element
  - Bottom Set Plug
- Max differential pressure of 10,000 psi
- Optimized pumpdown speeds
- BHT range of 150F – 450F
- Ball-in-place and pumpdown ball options

CASE STUDY DATA

PLUG LOCATION
Full Wellbore

WATER TYPE
Fresh Water

REGION
Haynesville

CASING SIZE
5.0'' 21.4#

PLUG SIZE (OD)
3.74''

BOTTOM HOLE TEMPERATURE
450 F

SOAK TIME
4 days

CLEANOUT REPORT
No tags, no debris in the returns

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