HEC Liquid Polymer XPT

Drilling Specialties' HEC Liquid Polymer XPT is a pure high-viscosity hydroxyethyl cellulosic polymer suspended in an ultra-clean mineral oil. HEC Liquid Polymer XPT contains 40% by weight high-quality HEC product.

Drilling Specialties' 40% active HEC Liquid Polymer XPT will not experience the separation which is evident in other liquid products. It does not settle or experience oil separation. Starting with a fine-grade mineral oil and utilizing our unique suspension technology, we eliminated settling of the pure HEC polymer solids while the product remains fully pourable. This allows for efficient quick mixes and sweeps without the need for elaborate and expensive mixing equipment. Also, more accurate metering of active products results in improved fluid performance down hole.

Product Stability

Drilling Specialties' HEC Liquid Polymer XPT is made from the Drilling Specialties suspension Technology. This technology is well known for the quality and stability of suspension products it produces. By preventing polymer settling and oil separation, the technology assures trouble-free storage, transport and mixing – all essential to cost-efficient and successful operations. Drilling Specialties' Liquid HEC Polymer XPT was one of the first, and remains one of the most effective, of the Drilling Specialties products made with this dependable technology.

Advantages

- Easy to handle and mixes well in low shear rate environments
- Works well at any salinity
- Increases carrying capacity of fluid
- May be poured down drill pipe
- No "fisheyes"
- Extremely stable suspension
- Highly effective viscosifier
- No preservative needed

Performance

Fann 35 viscosity data are shown in Tables 1 and 2 below for HEC Liquid Polymer XPT in 3% ammonium chloride brine and in a saturated sodium chloride fluid.

In a typical field application, HEC Liquid Polymer XPT is rapidly mixed through conventional rig mixing equipment. Complete hydration and viscosity development occur quickly and without the formation of fish eyes. In most cases, no shear mixing is needed to produce thorough dispersion and homogeneous mixtures – critical characteristics of both drilling and completion fluids exposed to the producing reservoir.

Cost

HEC Liquid Polymer XPT is an extremely efficient liquid suspension which eliminates loss of active polymer over shale shakers, thus reducing overall fluid costs. As a liquid suspension this polymer disperses in water and develops viscosity very quickly.

Mud Types

Most water-based formulations, drill-in, completion and workover fluids

Technical Information

Flash Point	185F(85°C) TCC, ASTM D56
Pour Point	-35°F
Freeze Point	-45°F
Density	8.07 lb/gal
SG	0.970
Color	cream

Mixing Requirements

Low-shear mixing equipment is sufficient to provide thorough dispersion and homogeneous mixtures

Handling

For specific instruction on handling, refer to the MSDS

Packaging

HEC Liquid Polymer XPT is generally packaged in 5-gallon disposable pails, containing a net weight of 40 lb of product (16 lb of HEC) 32 pails per pallet. Other packaging options such as 275-gallon totes are available.

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Applications	Material Needed
To viscosify carrying fluid in gravel packing	0.0 to 1.0 gal/bbl
As a general viscosifier for workover and completion fluids	0.25 to 0.75 gal/bbl
For viscous hole sweeps in horizontal drilling	0.50 to 0.75 gal/bbl
Fluid-loss control	0.50 to 1.00 gal/bbl
Rheology control	0.50 to 1.00 gal/bbl
For carrying capacity in clean fracture fluids	0.50 to 1.00 gal/bbl

Table 1 Solution Viscosities of HEC Liquid Polymer XPT in 3% Ammonium Chloride Brine

Temp °F	600	300	200	100	60	30	6	3	Vis 170 sec $^{-1}$
HEC Liquid Polymer XPT: 20 lb active polymer per 1000 gal, 6.38 gal per 1000 gal									
75	22	15	12	8	6	4	2	1	24
100	17	11	8	6	4	3	1	1	18
125	12	8	6	4	3	2	1	1	12
150	9	5	4	3	2	1	1	1	9
HEC Liquid Polymer XPT: 80 lb active polymer per 1000 gal, 25.52 gal per 1000 gal									
75	185	163	146	122	104	84	46	33	366
100	175	143	126	103	86	69	35	24	309
125	145	117	103	80	60	50	23	15	240
150	118	94	80	61	49	36	15	9	183

Table 2 Solution Viscosities of HEC Liquid Polymer XPT in Saturated Salt Water

Temp °F	600	300	200	100	6	3
HEC Liquid Polymer XPT: 0.4 lb active polymer per bbl						
80	16	9	7	3	1	1
150	7	4	3	2	1	1
HEC Liquid Polymer XPT: 0.8 lb active polymer per bbl						
80	38	25	19	12	2	1
150	14	8	6	4	2	1
HEC Liquid Polymer XPT: 1.2 lb active polymer per bbl						
80	53	38	31	22	5	4
150	25	16	12	8	2	2

Special Uses

1. As a viscosifier in saturated NaCl, KCl and $CaCl_2$ brine to 250°F
2. As a thickener for $CaBr_2$ to 150°F
3. As a filtrate reducer and bore-hole stabilizer in saturated NaCl, KCl, and $CaCl_2$ brine to 300°F