History

Seal-AX, a patented proprietary product line, has been developed and implemented over the last four years. Originally Seal-AX was developed as a seepage loss reduction agent in oil based drilling fluids and has since been expanded as an inhibitor in water based fluids and a variety of LCM's. Since introducing the product additional grades have been developed to encompass various drilling parameters and fluids.

Technology

The product line includes Seal-AX Regular, Seal-AX HT, PolarWhite, WhiteFury and PC (Paraffin Coated) LCM's. Seal-AX Regular and HT are typically used only in Inverts and as LCM additives. PolarWhite (anionically charged) and WhiteFury (micronized) are utilized to provide inhibition and increased wellbore integrity in WBM.

Application

Invert

Seal-AX Regular or Seal-AX HT are used as the principle seepage loss control agent in Invert drilling fluids. The size and malleability of the wax allows it to be squeezed into down hole micro fractures significantly reducing losses from industry averages. Seal-AX will also contribute heavily to the filter cake make up, along with traditional fluid loss additives, providing additional seepage loss prevention.

PolarBond

A combination of PolarWhite and WhiteFury are used in conjunction with CES Envirobond (amine) to provide enhanced inhibitive properties. PolarWhite carries an anionic charge which allows it to readily attach to drilled solids and the wellbore. WhiteFury is a micronized wax which provides hydrophobic properties to the filter cake. The waxes produce an instantaneous filter cakes which substantially increase wellbore stability and wellbore integrity, minimizing washouts and associated problems.

LCM

Seal-AX coated lost circulation materials make excellent additions to lost circulation pills due to the natural malleability of paraffin wax. The waxes allow a variety of LCM's to adhere to one another significantly increasing the pill's effectiveness. CES will soon be providing paraffin coated LCM's including CottonSeal and EnerSeal. Through ongoing testing, these LCM's are proving to have excellent compaction and bridging properties.

Canadian Energy Services LP • Suite 1400, 700 - 4th Ave SW, Calgary, AB, T2P 3J4 • Bus: (403) 269-2800 • Fax: (403) 261-6703

Benefits

Invert

- CES has seen reductions in total seepage losses as high as 55%.
- Increased lubricity. Reduced friction increases weight transfer to bit, giving increased penetration rates.

PolarBond

- Reduced washout when compared to caliper logs of traditional amine/PHPA systems.
- Increased wellbore stability as seen through significantly reduced NPT (reaming, cleaning, circulating at TD, etc).
- Increased lubricity. Reduced friction increases weight transfer to bit, giving increased penetration rates.
- PolarWhite and WhiteFury produce a grouting / cementing effect when drilling through rubble zones.

LCM

- As a direct addition to LCM pills, Seal-AX is able to adhere the other materials together and has proven to increase the chance of sealing the loss zone.
- New paraffin coated LCMs are sized to compact tightly together, forming a tight barrier to seal off losses and porosity.

Product Description

Seal-AX Regular (Medium / Coarse):

This product has a lower melting point (68 °C) which makes it ideal for seepage loss reduction in OBM over summer drilling programs and shallow applications (BHT below 55 °C). Seal-AX Regular can also be utilized in WBM to coalesce other grades of LCM together to effectively create a more stable pill. It will also provide increased lubricity in directional wells.

Seal-AX HT (Medium / Coarse):

This product has a higher melting point (90 °C) which makes it ideal for seepage loss reduction in OBM wells over winter drilling programs and deeper applications (BHT below 90 °C). Seal-AX HT can also be utilized in WBM to coalesce other grades of LCM together to effectively create a more stable pill. It will also provide increased lubricity in directional wells.

PolarWhite™:

This product has a very high melting point (120 °C) and carries a charge. The product has primarily been utilized as an effective inhibitor in WBM, acting as secondary source of inhibition in conjunction with CES Envirobond (amine). In areas where hole stability is a concern, Polar-Whtie has been utilized to produce engineered filter cakes that significantly increase wellbore stability and provide wellbore strengthening.

WhiteFury™:

This product has a very high melting point (120 °C) and is micronized. The product has primarily been utilized to produce engineered filter cakes that significantly increase wellbore stability and provide wellbore strengthening.

Seal-AX™

Canadian Energy Services LP • Suite 1400, 700 - 4th Ave SW, Calgary, AB, T2P 3J4 • Bus: (403) 269-2800 • Fax: (403) 261-6703