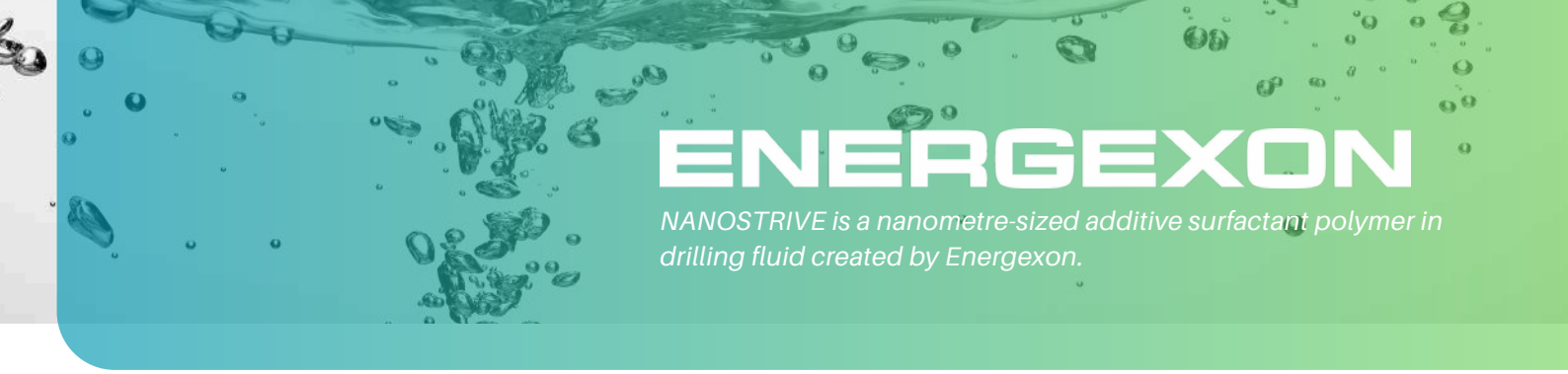

ENERGEXON

NANOSTRIVE is a nanometre-sized additive surfactant polymer in drilling fluid created by Energexon.

At a Glance

NANOSTRIVE is a nanometre-sized surfactant polymer in drilling fluids that provide excellent microfracture plugging ability, particularly in shale formations, which directly contributes to enhancing wellbore stability and fluid loss control.

Applications

Water-based drilling fluids ranging from fresh water to any salinity levels.

Mixing

Added directly as a dry powder

Handling

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the SDS.

Packaging

50-lb or 25-kg, multiwall paper sacks

Normal Concentration

3-10.5 lb/bbl (8.6-30.0 kg/m3)

Advantages

- Wellbore Stability
- **Fluid Loss Control**
- **Lubricity Enhancement**
- **Microfractures Plugging**
- **Thermal Stability Contribution**

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ENGINEERING

Penetration and Physical Plugging: NANOSTRIVE nanoparticles are able to penetrate into microfractures and pore spaces within the shale. Once inside these tiny spaces, the surfactants aggregate, effectively plugging the microfractures and preventing the loss of drilling fluid into the formation. This physical plugging helps maintain wellbore stability and minimizes fluid loss.

Absorption and Film Formation: NANOSTRIVE particles can adsorb onto the surfaces of microfractures within shale formations, forming a thin, impermeable film. This film acts as a barrier that reduces the interaction between the drilling fluid and the shale, thereby preventing the infiltration of water that can lead to swelling or disintegration.

Chemical Interaction: NANOSTRIVE can chemically interact with the shale formation. This interaction can lead to the alteration of the "wettability" of the shale surface, making it more water-repellent. By reducing the shale's affinity for water, these surfactants help prevent the absorption of water from the drilling fluid, which is a primary cause of shale instability.

Osmotic Pressure Reduction: NANOSTRIVE nanometre-sized surfactants can help reduce the osmotic pressure difference between the drilling fluid and the shale formation. By minimizing this pressure differential, the tendency of water to flow into the shale (and thereby causing swelling or weakening) is reduced.

Synergistic Effects with Other Fluids Components: NANOSTRIVE nanoscale surfactants can exhibit synergistic effects with other components of the drilling fluid, such as polyanionic celluloses, modified esters & clays. These interactions can enhance the overall plugging capability leading to a more efficient sealing of microfractures.

TYPICAL PROPERTIES

Appearance	Slightly moist powder
Bulk Density (g/cm3)	0.50-0.60
pH (1% solution)	7.0-9.0
Nanoparticle Content	≥60%
Sealing Performance	≤10 mL