

## SYNTHETIC MUD DRILL FLUID

*(Environment friendly premium synthetic fluid for high performance drilling)*

### DESCRIPTION:

**Synthetic Mud Drill Fluid** is a synthetic-based drilling muds fluid with premium synthetic & paraffinic base oils, low viscosity, colourless, odourless product with high flash point are often used during drilling of deep water and directional wells. **Synthetic Mud Drill Fluid** is an environment friendly product that meets the required regulations for drilling. In addition to its outstanding environmental attributes its special properties also offer excellent drilling performance. **Synthetic Mud Drill Fluid** provides excellent protection in mud drilling operating at high temperature and under extreme pressure. It has also high load-carrying capacity to protect against wear and seizure of sliding metal surfaces under heavy or shock-load conditions. The emulsion and metal surface adhesion properties allow a maintained lubricant film in the presence of moisture. It also provides protection against rust and corrosion. It also has good oxidation resistance and thermal stability at high temperatures for long service life.

### TYPES OF APPLICATIONS

**Synthetic Mud Drill Fluid** is recommended as drilling mud based fluid and is extensively used in both onshore and offshore (deep water) oil exploration. It ensures protection to both environment and health of operators.

#### Drilling Section:

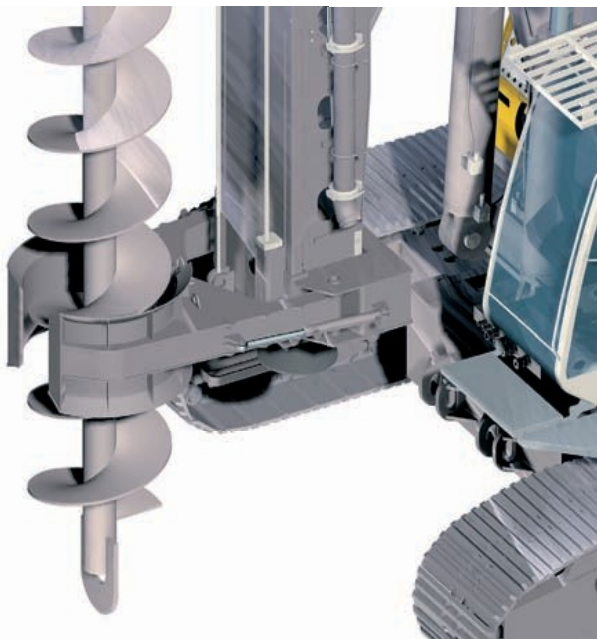
Base fluid of choice to formulate high performance mud for drilling complex wells like:

- Long horizontal wells, Deep water wells, High temperature & high pressure wells.
- Suitable for deep water environments with mud line temperatures  $-40^{\circ}\text{F}$  or  $4.4^{\circ}\text{C}$ .
- Suitable for high-temperature high-pressure (HTHP) environments with exceptional thermal stability in borehole temperatures up to  $450^{\circ}\text{F}$  or  $232^{\circ}\text{C}$ .

#### Hydraulic Sections:

Used a carrier fluid for guar gum package and friction reducer in:

- Slick water fracks (Friction reducer).
- Conventional guar fracks.



## ADVANTAGES & BENEFITS:

*Synthetic Mud Drill Fluid delivers value through the following benefits:*

- **Environment Friendly Product** - has virtually nil aromatic and sulphur content which makes it an excellent candidate as an environmentally friendly drilling base fluid.
- **Excellent Thermal Stability** - offers exceptional thermal stability which helps to take care of the arduous working conditions experienced in drilling such as high temperature and high pressure.
- **Outstanding High Drilling Performance** - lower equivalent circulating density (ECD), faster drilling rate, and increased hole cleaning with its low viscosity. It offers excellent cooling performance and lubrication to the drill bit. Low viscosity of oil helps in enhanced rate of penetration, increased hole cleaning efficiency and improved hole stability. Reduces the risk of scoring abrasion. Protects against corrosion and oxidation. Insensitive to ambient temperature variations. Boost the production of concrete through the additional energy generated by cuttings
- **Better Mud Control** - while drilling with less time spent on mud conditioning with its relatively consistent rheology profile over a wide range of working temperatures.
- **Enhanced Elastomer Performance** - which reduces failure leading to lower non-productive time\ (NPT) with its high aniline point.
- **Non Toxic** - presence of nil aromatics, polycyclic aromatic or carcinogenic compounds helps in enhancing worker safety and also makes the product safe for marine life.
- **Improved Safety** - to workers and operations with its low vapour pressure and relatively high flash point of product poses minimal risks of fire hazard and explosion while in operation making it ideal for use in drilling in a range of well conditions.
- **Excellent Biodegradability** - offers excellent biodegradability. It is an important factor for drilling fluids to ensure that the fluids do not persist in the environment for long periods of time. Bio Based - 100% renewable raw materials. **Synthetic Mud Drill Fluid** are synthesized specifically to not include PAHs, thus having lower environmental impact and lower toxicity for workers.
- **Technical Benefits** - Overall fluid losses reduced by 69% & Drilling duration reduced by 19% (thanks to boosted ROP).
- Works equally well throughout the temperature range - 35°C to + 45°C (-31°F to +113°F).
- Provides a lubricant film in excess of 100,000 PSI / 689 MPa.

### PROPERTIES OF SYNTHETIC MUD DRILL FLUID

ISO GRADE	TEST METHOD	Results
Appearance	Visual	Clear
Color at 25°C	ASTM D1500	L 0.5
Density at 29.5°C, g/cc	ASTM D1298	0.803
Viscosity @ 40 °C	ASTM D445	2.7
Flash Point °C	ASTM D92	89
Pour Point °C	ASTM D97	-35
Initial Boiling Point °C	ASTM D86	210
Final Boiling Point °C	ASTM D86	310
Copper Corrosion, 100OC, 3 hrs.	ASTM D130	1a
Aniline point °C	ASTM D611	94
Aromatics, %m	ASTM D2140	<0.1

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