

## Water-based mud ROP enhancer

Improve the rate of penetration (ROP) in water-based mud (WBM) systems  
Meet the needs of various drilling operations.



## Product #: UBDrill-143

- Specifically designed to improve ROP in high-performance water-based drilling fluid systems.
- UBDrill-143 enhancer employs a special blend of surfactants to keep the bit free of solids. It also assists in removing any buildup of drill solids below the bit, enabling the cutters to make continuous contact with the formation.

### Introduction

- UBDrill-143 is water-based mud ROP enhancer
- Reduces bit and BHA balling and Reduces torque and drag
- Works effectively with Talon PDC drill bit
- Significantly enhances drilling ROP while optimizing drilling efficiency

### Application

- Water-based drilling fluids
- Medium to hard shale formations
- Onshore and Offshore
- For ROP enhancement, 1~3% by volume of the UBDrill-143 enhancer should be added directly to the

### Recommended Handling

- All personnel handling this material must handle it as an industrial chemical, wearing protective equipment and observing the precautions as described in the Material Safety Data Sheet (MSDS).

### Packaging and Storage

- The UBDrill-143 enhancer is packaged in 55-galUS [208-L] drums. It is also available in bulk.
- Store in a dry, well-ventilated area. Keep container closed. Keep away from heat, sparks, and flames. Store away from incompatibles.

mud system at or near the pump suction over one circulation period. Ideally, the initial treatment should be made prior to drilling out of the casing shoe or after a trip and before entering the hole while the bit and BHA are clean. After the initial treatment, the product should be continually added or injected into the mud stream at the pump suction while the bit is drilling.

- The injection rate will vary according to hole size, pump rate, dilution rates, and ROP.
- UBDrill-143 enhancer concentrations of up to 7% by volume will not affect drilling fluid properties or environmental toxicity.

### Technical Index

Properties	Specification
Appearance	Yellow to brown liquid
Odor	Hydrocarbon-like
Specific Gravity(20°C ,g/cm <sup>3</sup> )	0.78-0.85
Solubility in Water (25 °C)	Insoluble
Flash Point (°C, closed)	94min

## Case study



Well Information	
Location .....	Deep Water, Offshore Black Sea, Turkey
Intervals drilled:	
18.125 x 22-in. hole for a total of 135 m (443 ft).....	from 2,805 to 2,940 m (9,203 – 9,646 ft)
16.5 x 20-in. hole for a total of 380 m (1,247 ft).....	from 2,940 to 3,320 m (9,646 – 10,893 ft)
14.75 x 17.5-in. hole for a total of 268 m (879 ft).....	from 3,320 to 3,588 m (10,893 – 11,772 ft)
12.25 x 14.75-in. hole for a total of 801 m (2,628 ft).....	from 3,588 to 4,389 m (11,772 – 14,400 ft)
8.5-in. hole for a total of 954 m (3,130 ft).....	from 4,389 to 5,343 m (14,400 – 17,530 ft)
Interval Angle .....	Vertical ( 0°)
Water depth .....	2,018 m (6,621 ft)
Mud weight.....	1.10– 1.32 S.G. (9.2 – 11.0 lb/gal)

### ◆ The Situation

The offshore Black Sea area is well known for drilling difficulties like wellbore instability, bit balling and tight hole while tripping, caused by the highly reactive shale formation. Uther challenges for this Deep Water exploration well were considered to be Gas Hydrates, narrow Mud Weight window, hole cleaning, fluid and waste volume handling. The Operator required formulating a high performance inhibitive Water Based mud not only to mitigate all technical challenges but also to minimize any environmental risk.

### ◆ The Results

The well was completed in only 80 days, which includes a 118m (387 ft) supplementary interval (exploration reasons,. Actually, the initial planned Total Depth was reached in only 75 days, a 35% reduction of the "Best Case" scheduled time (115 days) or a 44% reduction compared to AFE scheduled time (135 days. Considering the daily cost of a Deep Water Operation, the time reduction was considered a very good achievement

The average Rate of Penetration (ROP) was ranging between 9.6 m/hr (31.5 ft/hr) in the 8.5-in. hole to 18.7 m/hr (61.4ft/hr) in the16.5-in. hole, whilst the instant ROP was intentionally limited to 20 m/hr (65.5 ft/hr) due to gas kicks and losses potential. The dried cuttings were always firm and dry with clear PDC bit marks, proving an inhibition level comparable with Oil Based Mud.

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