TECHNICAL SHEET

Anchor USA
A QMAX COMPANY

MAXDIRECT: Brine/Diesel Emulsion System

Unconventional approach to the common brine system

Anchor USA's MAXDIRECT* system is built from oil (diesel) emulsified into water (brine). This emulsified mud system brings an alternative to the common brine system used in many wells. MAXDIRECT incorporates a powerful emulsifier and polymer to provide a wide range of viscosities and rheologies, along with increased rates of penetration (ROP), improved lubricity, and the elimination of the need to dilute the fluids system to control mud weights due to elevated chloride concentrations.

System Components & Additives

Bentonite Premium is a hydrous aluminum silicate and belongs to the family of clays being a sodium montmorillonite. Bentonite Premium is naturally occurring and untreated; meaning it has not been chemically modified. It complies with the API 13A specification for non-treated bentonite.

QSTAR ENV/HT is a carboxymethyl starch manufactured as a filtration control agent for water-based drilling and completion fluids. QSTAR ENV and HT provide excellent compatibility in a wide range of saline environments.

QXAN is a high molecular weight, xanthan gum biopolymer, viscosifier and suspension control agent effective in fluid systems with broad pH (7.0 to 11.0) ranges, tolerating common ionic contaminants up to, and exceeding, 1000 ppm. The product is a superior low shear rate viscosifer, exceeding conventional biopolymers in most fluid environments and resulting in excellent suspension and hole cleaning properties.

**f/k/a Brine/Diesel Emulsion System*

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BENEFITS

- 30% - 70% by volume hydrocarbon in the internal phase
- Superior yield point and low gel strengths
- Yield points can be controlled by adding oil or water during drilling
- Emulsion remains constant with little to no separation
- Improved lubricity
- Weighting agents such as calcium carbonate, barite, or hematite can be used to raise the density
- Improved ROP
- Eliminates the need to set a string of casing below the salt section
- Minimized washout in the salt section
- Eliminates the need to use multiple fluids systems in the intermediate/production intervals
- Ability to maintain lower mud weights to eliminate/minimize mud losses

QPAC LV is a polyanionic cellulosic polymer, specifically designed to reduce the filtration rate of solids-laden water-based fluids where an increase of viscosity is undesirable, while avoiding an appreciable increase in the rheological properties of the fluids system.

QMUL DIRECT is an emulsifier/surfactant designed to internally emulsify various hydrocarbons, including but not limited to diesel, in fresh or saltwater. A unique and powerful water external microemulsion is the end result.

MAXDIRECT – Formulations

Product	Function	Concentration (ppb)
Water	Continuous Phase	As Required
Diesel	Internal Phase	As Required
Bentonite Premium	Viscosifier	2.0 - 5.0
Caustic Soda	Alkalinity Control	0.2 - 0.3
QSTAR ENV / HT	Filtration Control	0.5 - 2.0
QXAN	Viscosifier	0.2 - 0.75
QPAC LV	Filtration Control	0.2 - 1.0
QMUL DIRECT	Emulsifier	5.0 - 10.0

MAXDIRECT – Fluid Properties

Properties	Typical Range	Min/Max Recommended
Mud weight (ppg)	7.2 - 8.0	As Required
Plastic Viscosity (cP)	15 - 25	10/30
Yield Point (lb/100ft2)	10 - 30	10/40
Gels 10"/10' (lb/100ft2)	5/10 - 15/25	5/15 - 20/30
OWR	30/70 - 70/30	20/80 - 70/30
API Fluid Loss (ml/30min)	3.0 - 8.0	Max 10.0
pH	8.5 - 10.0	8.0 - 10.5
Calcium (mg/l)	40 - 120	< 240

Solids Control and Disposal:

- 2 - 3 shale shakers
- 2 - 3 drying shakers
- API 170 - 200 mesh screens
- High speed centrifuge - 18" bowl
- 6% - 8% oil on cuttings, ability to bury cuttings on site

We Deliver, No Excuses