

Elementis Specialties, Inc.
PO Box 700, Wyckoffs Mill Rd.
Hightstown, NJ 08520
Tel: 609.443.2500
Fax: 609.443.2422

Elementis Specialties
PEGASUSPARK
De Kleetlaan 12 a, bus 3
1831 Diegem, Belgium
Tel: 32.2.790.76.00
Fax: 32.2.790.76.60



• contactus@elementis-na.com • www.elementis-specialties.com •

THIXATROL® DW 50

Universal Polymeric High Temperature / Deep Water Flat Rheology Viscosifier for Oil Based Drilling Fluids

THIXATROL DW 50 is a unique proprietary organic polymer that generates an efficient rheological profile in synthetic based invert emulsion drilling fluids while having a minimal viscosity increase when subjected to reduced temperatures. This highly desirable flat rheological property is stable through 350°F and can be extended to applications beyond deep water drilling.

In addition to maintaining a consistent or flat rheological profile from 40°F through 350°F, THIXATROL DW 50 is not toxic to marine life.

THIXATROL DW 50 exhibits an excellent balance of dispersibility for initial viscosity build, efficiency for cost effectiveness and tolerance to adverse conditions for reduced depletion rates. Control of ECD is significantly improved as compared to drilling fluids incorporating only conventional rheological additives.

PERFORMANCE CHARACTERISTICS

- “Flat” rheological profile from 40°F through 350°F for reduced low temperature viscosity build and improved ECD control for the elimination or reduction of mud losses.
 - 35% reduction in 40°F HSRR
- Stable to bottom hole temperatures in excess of 350°F
- PARCOM (Class D) compliant for global offshore applications
- Maintains HTHP fluid loss control
- Shear thinning rheological profile for improved ROP

- Compatible with conventional invert emulsion drilling fluid additives and contaminants
- Builds viscosity in clay free systems or with organoclays
- Efficient hole cleaning and suspension properties for sag control

APPLICATIONS

The required concentration of THIXATROL DW 50 is dependent on the oil/water ratio, base oil type and density of the system as well as type and concentration of surfactants used as emulsifiers and wetting agents and type and concentration of organophilic clay. A fluid with a higher oil/water ratio (i.e. 90:10) will require more THIXATROL DW 50 than a fluid with a lower oil/water ratio (i.e. 70:30). A higher density fluid will generally require less THIXATROL DW 50 as compared to a lower density fluid. Generally, concentrations will be in the range of 0.5 to 5.0 pounds per barrel. The ratio of organophilic clay to THIXATROL DW 50 will typically range from 1:0.25 to 1:1. Viscosity can be built in:

Oil Based Drilling Fluids
Completion Fluids
Packer Fluids
Invert Emulsion Drilling Fluids
Workover Fluids
Clay Free Drill –In Fluids

THIXATROL DW 50 can be added at the mud plant when building new mud, or can be added directly to the mud pits when building volume during the drilling process. THIXATROL DW 50 should not be used in combination with any other polymeric rheological additives without first pilot testing. THIXATROL DW 50 can be used with or without organophilic clay. The

NOTE: The information herein is currently believed to be accurate. We do not guarantee its accuracy. Purchasers shall not rely on statements herein when purchasing any products. Purchasers should make their own investigations to determine if such products are suitable for a particular use. The products discussed are sold without warranty, express or implied, including a warranty of merchantability and fitness for use. Purchases will be subject to a separate agreement which will not incorporate this document.

addition of some organophilic clay is recommended to achieve the most efficient and temperature stable rheological system.

Recommended organoclays are as follows:

- BHT below 300°F – BENTONE® 155
- BHT above 300°F – BENTONE 38

The ratio of organoclay and THIXATROL DW 50 should be maintained while treating at the well. Adequate agitation is necessary when incorporating THIXATROL DW 50 into the oil based fluid. The amount of shear necessary will depend on the temperature of the synthetic oil, the rate of rheological additive addition, the

oil/water ratio, and the amount of solids and/or weight material in the system.

CHEMICAL AND PHYSICAL DATA

Composition.....oil soluble polymer
 Color.....yellow to amber
 Form.....liquid
 Specific gravity...0.96
 Pour Point0°F
 pH.....10 – 11
 Solubility.....Water Insoluble

THIXATROL® DW 50 PARCOM Data

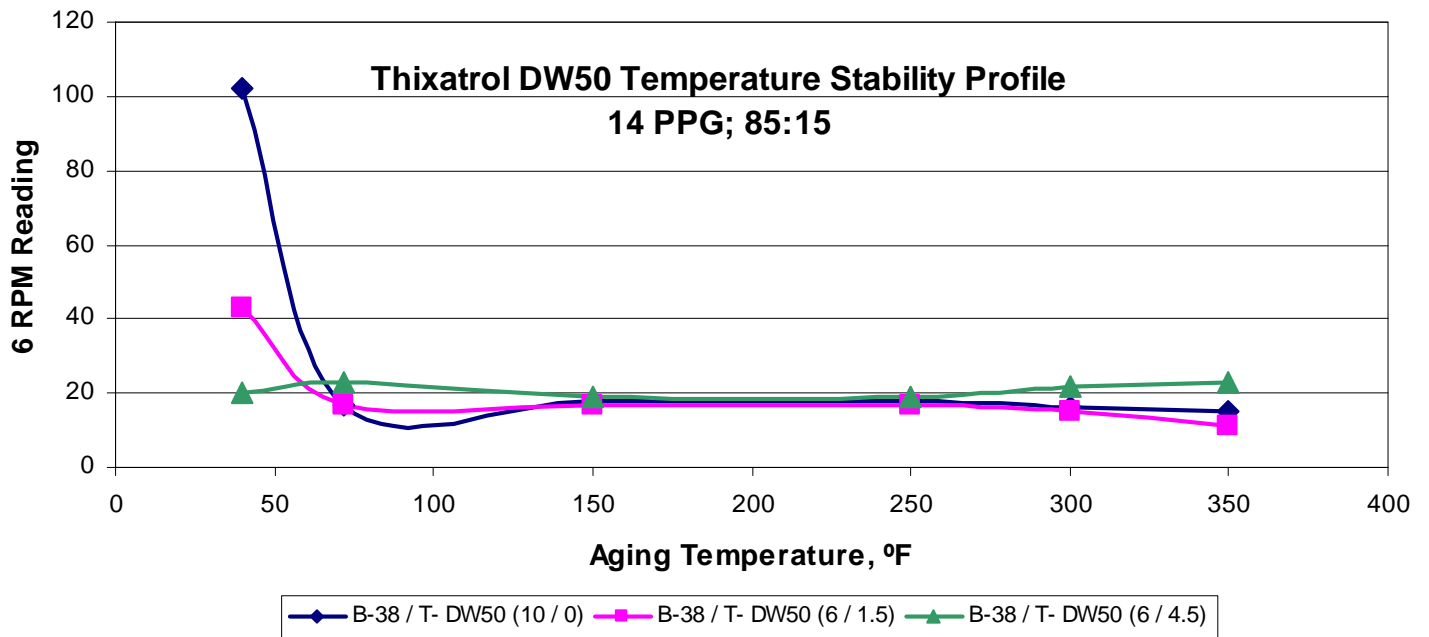
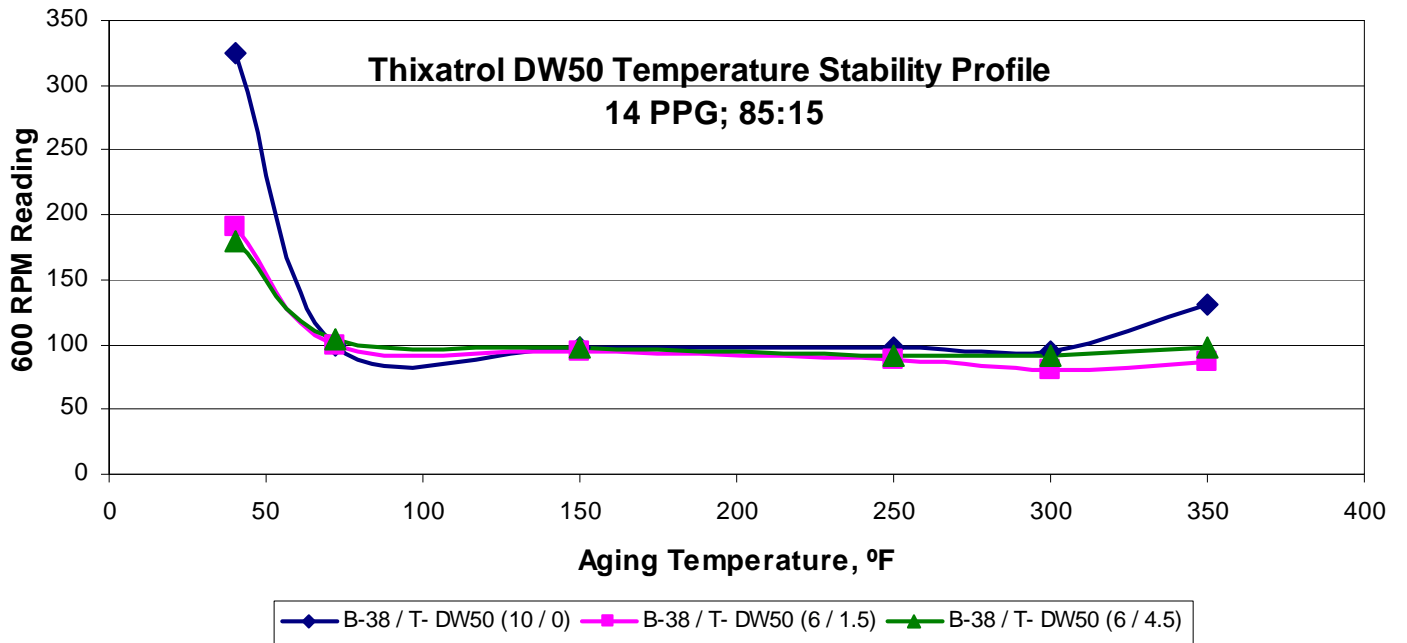
MW > 600 (bioaccumulation not likely)	Class D	
Aerobic Biodegradation in seawater	OECD 306	9.5% at 2.0mg/l
Marine invertebrate (Acartia Tonsa)	ISO 14669	LC50 (48h)>2,000mg/l
Marine Algal (Skeletonema Costatum)	OECD 201	EC50 (72h): 730mg/l
Marine Sediment (Corophium volutator)	PC 1995	10day LC50>10,000mg/kg
Re-worker		
Juvenile Turbot fish (Scophthalmus Maximus)	PC 1995	LC50 (96h)>730mg/l

THIXATROL® DW 50:BENTONE® 38 PERFORMANCE IN OIL BASED DRILLING FLUIDS

	BENTONE® 38	B-38:DW50	B38:DW50	<u>Mud Formulation</u>
	<u>10 #/bbl</u>	<u>6:1.5</u>	<u>6:4.5</u>	(14 ppq; 85:15)
<u>120°F</u>				C16 - 18 IAO - 172.1 gms
600 RPM	98	94	98	BENTONE 38 – X gms - mix 1'
300 RPM	66	62	63	THIXATROL DW50 - Y gms mix 5'
6 RPM	18	17	19	1° Emulsifier A (amine) – 15 gms mix 4"
ECD	14.4	14.4	14.4	Lime – 10 gms - mix 1'
				CaCl2 Brine (25 wt%) – 48 gms - mix 25'
				Barite – 337.2 gms - mix 10'
<u>40°F</u>				<u>ECD Calculation Basis</u>
600 RPM	325	190	179	Mud Wt -14#/gal
300 RPM	266	127	109	HSR Visc - 600
6 RPM	102	43	20	LSR Visc - 300
ECD	16.9	14.8	14.5	Flow Rate - 287 gpm
Delta ECD	2.5	0.4	0.1	OD hole - 8.74 in
				OD pipe - 4.5 in
				length - 10,650 ft

NOTE: The information herein is currently believed to be accurate. We do not guarantee its accuracy. Purchasers shall not rely on statements herein when purchasing any products. Purchasers should make their own investigations to determine if such products are suitable for a particular use. The products discussed are sold without warranty, express or implied, including a warranty of merchantability and fitness for use. Purchases will be subject to a separate agreement which will not incorporate this document.

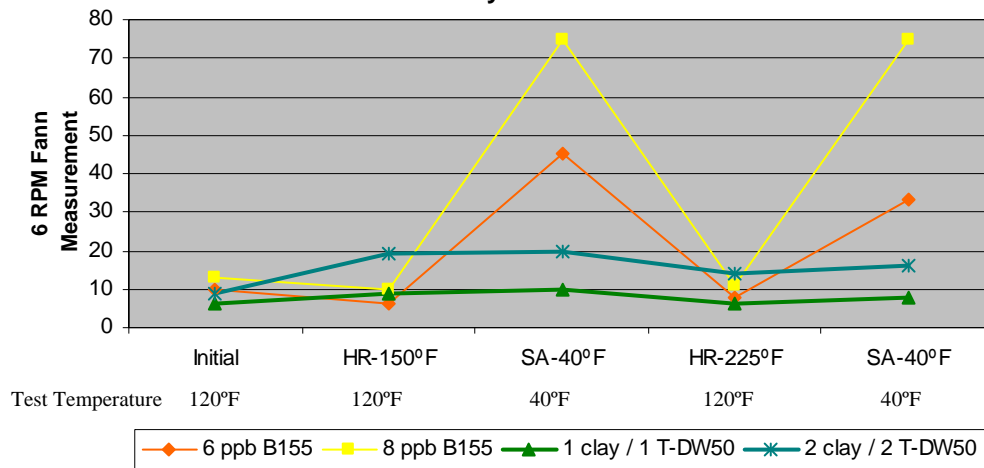
THIXATROL® DW 50 BENTONE® 38 PERFORMANCE IN OIL BASED DRILLING FLUIDS



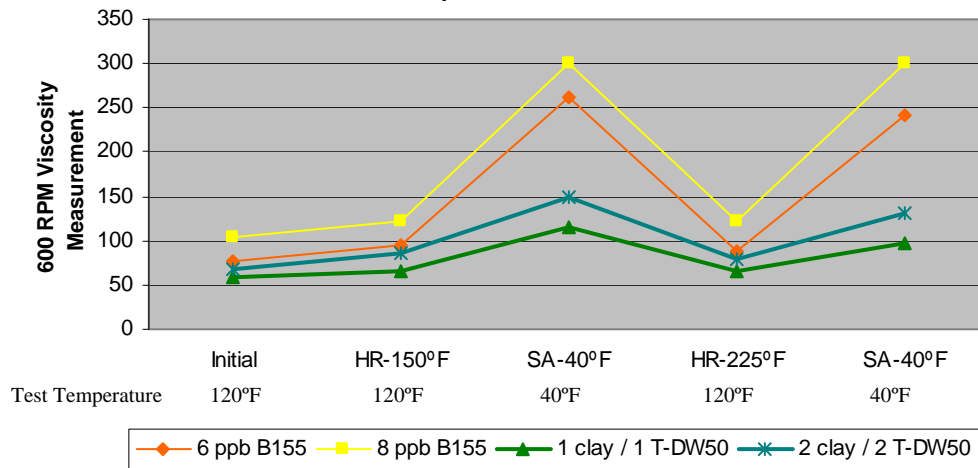
NOTE: The information herein is currently believed to be accurate. We do not guarantee its accuracy. Purchasers shall not rely on statements herein when purchasing any products. Purchasers should make their own investigations to determine if such products are suitable for a particular use. The products discussed are sold without warranty, express or implied, including a warranty of merchantability and fitness for use. Purchases will be subject to a separate agreement which will not incorporate this document.

THIXATROL® DW 50 : BENTONE® 155 Low Temperature Viscosity Profile

Flat LSR Rheological Profile Through Hot & Cold Aging Cycles



Flattened HSR Rheological Profile Through Hot & Cold Aging Cycles For Superior ECD Control



Mud Formulation

C ₁₆ – C ₁₈ IAO	
Barite	12 #/gal
30% CaCl ₂ Brine	80:20
Primary Emulsifier	4 #/bbl
Wetting Agent	2 #/bbl
Lime	4 #/bbl

Health and Safety Data

Before using this product please consult our Material Safety Data Sheet for information on safe handling.

NOTE: The information herein is currently believed to be accurate. We do not guarantee its accuracy. Purchasers shall not rely on statements herein when purchasing any products. Purchasers should make their own investigations to determine if such products are suitable for a particular use. The products discussed are sold without warranty, express or implied, including a warranty of merchantability and fitness for use. Purchases will be subject to a separate agreement which will not incorporate this document.