



## PRODUCT DATA & CASE HISTORIES

### Product Description:

Dry flowing insoluble powder composed of a combination of platy aluminum silicate materials, processed hydrocarbons and graphite ground to a very fine consistency to form tight suspension in water base drilling fluids, Oil base drilling fluids and invert emulsion muds.

CONTONE® works mechanically by blocking micro fissures in water sensitive shale with minute insoluble particles. It has been noted in many shale problem areas of the world that some shale's are simply water sensitive. Whether it is water with a high chloride, calcium, or potassium content, the shale will still slough. With the addition of 2-8 ppb of CONTONE® better results are achieved in drilling troublesome shale. CONTONE® can be used with any type of water or oil base fluid.

CONTONE® has superior lubricating qualities that will work unfailingly for torque and drag problems. When extreme torque and drag are encountered, it has been noted that 6ppb is a good starting point. For lubricity the engineer on location should calculate what torque and drag numbers are suitable to his situation and adjust the concentration of CONTONE® accordingly.

### Properties:

APPEARANCE: Gray-Black Powder

SIZE: 74-75 microns

SPECIFIC GRAVITY: 2.5-2.7

TEMPERATURE TOLERANCE: 500° F +  
Reducing HTHP in OBM Systems

### Principal Uses:

Shale Inhibition Control PARTICLE

Torque and Drag Reduction

Seepage Control

Sealing Micro-Fractured Shale

### Application:

CONTONE®, being a dry powder, should be added through the mud hopper. CONTONE® mixes well with any drilling fluid mud system.

Initial treatment

2-8 ppb

Maintenance treatment

1-2 ppb daily depending on drilling rates

### Packaging:

CONTONE® is packaged in 50 lb multi-walled sacks and has 50 sacks per pallet.



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### SHALE INHIBITION

For troublesome shale sections with seepage problems or sloughing shale problems a minimum of 2-8 ppb of CONTONE® for each barrel of active mud should be added prior to entering the suspect zone. This should be maintained by the minimum daily additions of 0.25 ppb of treated active drilling fluid. Any new hole drilled requiring the building of additional drilling fluid should be treated with 2-8 ppb of CONTONE® and 0.25 ppb additions resumed thereafter. New drilling fluid built consists of fluid for lost returns, dilution, and solids control equipment.

### TORQUE & DRAG / ROP ENHANCEMENT

For decrease in torque and drag or increase in ROP, additions of CONTONE® maybe added initially in the form of a sweep. For sweeps isolate 50 to 100bbls of active drilling fluid in the slugging tank. Add 8 ppb of CONTONE® to the slugging tank and sweep the well bore with the desired amount of the sweep needed for immediate results. While sweeping the well bore begin additions of 2-8 ppb of CONTONE® to the active system followed by a maintenance plan for continued results.

### SEEPAGE CONTROL /MICRO FRACTURES

CONTONE® has a micron particle size distribution of 34-75. CONTONE® is a non- soluble product and is non-florescent. For seepage control and the sealing of micro fractures the addition of 2-8 ppb of CONTONE® added directly to the system provides excellent coverage and has proven to be a superior sealant. Daily maintenance at original application should be maintained.

### HPHT REDUCTION

CONTONE® in field applications has provided phenomenal reduction in hard to reduced HPHT's. The optimum application for reduction varies from 2-6 ppb with no more than 6 ppb being needed. CONTONE® has proven to reduce the HPHT in OBM as well as WBM's as much as 99.9% from original HPHT.



## LUBRICITY - INDEPENDENT TESTING

### Lubricity Test 30-June 2010 MILLER & ASSOCIATES

#### 16.0 lb/gal Oil Base Mud With Contone

TOURQUE	<u>Base Mud</u>	<u>2-ppb</u>		<u>4-ppb</u>	
	AMPS	AMPS-Reduction		AMPS-Reduction	
100	6.4	5.6	<12.5%	5.5	<14.1%
200	8.6	7.1	<17.5%	7.2	<16.3%
300	10.8	9.6	<11.2%	9.4	<13.0%
400	15.1	13.4	<11.3%	13.1	<13.3%
500	16.4	13.6	<17.1%	13.4	<18.3%
600	18	16.2	<10.0%	15.9	<11.7%
Average total reduction		<13.3%		<14.5%	

TOURQUE	<u>Base Mud</u>	<u>6-ppb</u>		<u>8-ppb</u>	
	AMPS	AMPS-Reduction		AMPS-Reduction	
100	6.4	5.0	<21.9%	5.1	<20.4%
200	8.6	6.8	<21.0%	6.2	<28.0%
300	10.8	9.1	<15.8%	8.8	<18.6%
400	15.1	13.0	<14.0%	12.9	<14.6%
500	16.4	12.9	<21.4%	12.4	<24.4%
600	18	15.0	<16.7%	14.8	<17.8%
Average total reduction		<18.5%		<20.6%	



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### ENDORSEMENT

#### F.J. BROWN & ASSOCIATES, INC.

FROM: Murphy J. Hebert DATE:  
March 12, 2002  
SUBJECT: Shale Inhibition-Main Pass Block 35

I recommend the use of **CONTONE®** for inhibition of shale's in pressure transition intervals or any shale's that are not water wet; not for gumbo. I currently use the **CONTONE®** in lieu of Soltex for wells that I plan for clients in the Gulf Coast region. It has been my experience that the **CONTONE®** will stabilize a well bore better than any competitive product when the problem is associated with unstable shales.

My first use of the **CONTONE®** was on a deep well for Chevron in Main Pass Block 3 5 and it was on this well that I observed the most dramatic results. While drilling a *6 1/2" hole below 12,000' the gas units were high and the amount of shale across the shaker was considerably more than drilled cuttings. Periodic increases in mud density resulted in short term decreases in gas units but the volume of shale continued to be excessive. During a logging run, the caliper on the logging tool was fully extended and indicated a hole size too large to measure. Obviously, Chevron's Geology Group were displeased with the hole size and Chevron's Drilling Superintendent decided to add the **CONTONE®**, a new product at the time, to the mud. The remaining *6 1/2" hole, several hundred feet, was in perfect gauge.**

As a well site-drilling engineer, I was amazed with the results. But had no idea why this dramatic result occurred. Because of a production engineering assignment, I forgot about the **CONTONE®**. Upon returning to a drilling assignment, I found the industry using blown asphalt, Soltex, for shale inhibition. Although the results with Soltex were good on all wells I was associated with, there was none to compare with the results obtained with **CONTONE®**. **CONTONE®** does not go into solution as readily as Soltex, which explains the more favorable results from **CONTONE®**. If the material has to seal the micro-fractures, the last soluble-the better the results.

Some of our well site supervisors are high on **CONTONE®** as a lubricant and recommend it for decreasing torque and drag. However, I do not use it for that purpose, but accept the fact that there is an additional benefit.



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**SHALE INHIBITION - BAWIA SHALE**

The International Drilling and Downhole Technology Center in Aberdeen tested **CONTONE®** in a horizontal wellbore where test results showed rotational torque friction factors on average were 41% lower than those for the untreated mud. Chevron’s DTC ran a swell comparison test using a very water sensitive shale (bawia shale) from P.New Guinea. **CONTONE®** was tested and compared to Soltex®, super shield, and HF-100N.

	Soltex	Contone	Super Shield	6% HF-100N
.5 days	10.31	8.35	10.62	11.81
1 day	11.12	9.01	11.44	13.16
2 days	11.64	9.35	11.97	13.93
3 days	11.97	9.58	12.25	14.35
4 days	12.18	9.67	12.41	14.59

