

A microscopic view of numerous spherical droplets of varying sizes, some appearing as bright teal and others as light grey, all covered in fine water droplets. The background is a dark, textured grey.

Global Oilfield Solutions

Dewatering additives
for the Oilfield Industry: Alcomer®

Our range of Alcomer® products allow you to fully optimize your drilling operations

Introduction

Water-based drilling fluids can be disposed of in an environmentally acceptable and more cost effective manner when they are first separated into an aqueous phase and a sediment phase. It is a well-established fact that solid, in particular fines and ultra fines can cause severe problems in drilling fluids when allowed to accumulate. These solids can be controlled to a limited degree through the use of mechanical equipment such as shale shakers, desanders, desilters, mud cleaners and centrifuges. These types of equipment will effectively remove solids down to approximately the 3 µm range. Below this particle size, the effectiveness of mechanical equipment is greatly reduced. If allowed to continue to accumulate, solids below the 3 µm range can cause rheology issues, decrease penetration rates and formation damage. To effectively remove these fine solids it is recommended that certain chemicals, specifically polymeric coagulants and flocculants, be used in conjunction with mechanical equipment.

Function guide

The Alcomer® series of polymers contains both low molecular weight cationic coagulants and a wide range of molecular weight nonionic, anionic, and cationic flocculants. Simple laboratory experiments can help define the optimum treatment options and our experience has confirmed the success of these treatments in field applications.

Dosage Rate Recommendation

To determine the most effective coagulant/flocculant combination along with the dosage rates, a standard jar test should be conducted on the relevant drilling fluids. Since dosage rates are affected by a number of parameters, i.e. the ionic content of the fluid, solids content, solids type and fluid pH, it is challenging to predict an accurate dosage rate for a specific drilling

fluid without testing. When testing, coagulants should be diluted 1:10 with fresh water prior to testing. Flocculants should be applied as a 0.5% active solution. The following procedure is suggested:

Test **coagulants** on the relevant drilling fluid. Dilution of the drilling fluid and/or pH adjustment (pH 6.5–7.5) may also be necessary to achieve a satisfactory coagulation effect (formation of small flocculant and clear fluid at bottom of jar). Coagulant dosage is typically in the range of 1,000–10,000 ppm active polymer.

Once coagulation has been achieved test **flocculants** on the coagulated fluid. An effective flocculant will help develop large particles, and the remaining liquid can then be decanted. Flocculant dosage is typically in the range 100–1,000 ppm active polymer.



A test kit is readily available upon request. A product or combination of products contained in this kit should be effective in dewatering the majority of drilling fluid.



Application Recommendations

The following is a general guideline for the use of Alcomer® products in clear water drilling, control of MBT* values, closed loop drilling systems, and reserve pit clean-up. It is highly recommended that jar tests be performed to identify the best product or combination of products that will be technically and economically most efficient. It is extremely difficult to predict the dosage rate for a specific drilling fluid without preliminary laboratory tests, since dosage rates can be affected by one or a combination of four main parameters: the ionic character of the fluid, the percent solids content, the types of solids present and fluid pH.

Clear Water Drilling

In fresh water systems, nonionic and anionic polymers are most often used. Alcomer® 80 (nonionic), Alcomer® 24 UK (anionic)**, and 120B (anionic) are all suitable choices. In salt water systems, cationic polymers have proved to be most effective. Alcomer® 700 types are preferred. For both fresh water and salt water application it is recommended to use approximately one vis cup (1 liter) of solid grade polymer (bulk density 0.7) or two vis cups (2 liters) of liquid polymer per chemical barrel of water (50 gallons/190 liters) to obtain the required 0.5% stock solution. A chemical barrel should last approximately 3–4 hours under normal penetration rates. The polymer solution should be added continuously at the flow line while circulating the reserve pit. It is very important that the solution be added at a point of turbulence, in order to ensure proper mixing of the flocculant with the drilled solids. Dosage rates should be adjusted, if necessary, by monitoring solids discharge over the shaker screen

Control of MBT Value

There are a number of Alcomer® products, both anionic and cationic, that will decrease or remove the bentonite content

of a drilling fluid. Alcomer® 24 and 120B are suitable choices depending upon the substrate. A 0.5% stock solution should be prepared as described in the Clear Water Drilling section. Again, it should be stressed that the polymer solution be added at a point of turbulence to ensure proper mixing of flocculant and solids. For this application, the polymer solution is usually added intermittently in order to control the bentonite content. The dosage rate is again determined by monitoring solids discharge.

Closed Systems and/or Reserve Pit

A closed system is one which utilizes a very small reserve pit or, more commonly, none at all. The system is set up for the continuous treatment of the drilling fluid, and normally a proportion of the circulating fluid is taken via a flow-line and it is treated to remove the solids. The centrate or clear water portion is then returned to the active system. The solids are collected and removed to a landfill or other suitable disposal site. Again, it is recommended that a 0.5% stock solution be prepared as described in the Clear Water Drilling section. For this application, the polymer solution should be added ahead of the centrifuge. The dosage rate is dictated by flow rate, flocculant size, and supernatant clarity. In this application, it is very important that jar tests be run on the substrate prior to centrifugation to determine the appropriate polymer dosage level. Over treatment with a coagulant or flocculant can cause rheological and/or disposal problems.

More detailed recommendation are contained in our **A Guide to Dewatering Drilling Fluids** and available upon request.

* MBT: methylene blue test

** Product most often used





General information

Product	Chemistry	Physical form	Solid content [%]	Molecule weight	Ionic type	Ionic grade
Alcomer® 80	Polyacrylamide	Powder	100	Very high	Non-ionic	NA
Alcomer® 24 UK	Polyacrylamide	Bead	100	High	Anionic	Low
Alcomer® 90L	Polyacrylamide	LDP	50	Very high	Anionic	Low
Alcomer® 115	Polyacrylamide	Powder	100	Very high	Anionic	Medium
Alcomer® 130	Polyacrylamide	Powder	100	Very high	Anionic	Medium
Alcomer® 752	Polyacrylamide	Bead	100	Medium	Cationic	Low
Alcomer® 755	Polyacrylamide	Bead	100	Medium	Cationic	Medium
Alcomer® 758	Polyacrylamide	Bead	100	Medium	Cationic	High
Alcomer® 812	Polyacrylamide	Powder	100	Medium high	Cationic	Low
Alcomer® 814	Polyacrylamide	Powder	100	Medium high	Cationic	Medium
Alcomer® 819	Polyacrylamide	Powder	100	Medium high	Cationic	High
Alcomer® 7109	Polyacrylate ester quat	Liquid	15	Low	Cationic	High
Alcomer® 7115	PolyDADMAC	Liquid	20	Very low	Cationic	High
Alcomer® 7125	PolyDADMAC	Liquid	40	Very low	Cationic	High
Alcomer® 7187	Polyamine	Liquid	40	Very low	Cationic	Very high
Alcomer® 7197	Polyamine	Liquid	50	Very low	Cationic	Very high
Alcomer® 7198 US	Polyamine	Liquid	50	Very low	Cationic	Very high
Alcomer® 7199	Polyamine	Liquid	50	Very low	Cationic	Very low



Function		Availability			
Coagulant	Flocculant	Region			
		NA	SA	EU	AP
	■	■	■	■	■
	■	■	■	■	■
	■		■	■	■
	■	■	■	■	■
	■	■	■	■	■
	■	■	■	■	■
	■	■	■	■	■
	■	■	■	■	■
	■	■	■	■	■
	■	■	■	■	■
■		■	■	■	■
■		■	■		■
■		■	■	■	■
■				■	■
■		■	■		
■		■	■		

NA
 North America including Canada and Mexico
SA
 South America including Central America
EU
 Europe region including Middle East, Africa, CIS
AP
 Asia Pacific including China, Japan



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