## MOC/One<sup>™</sup> Slurry for Selective Water Control

Hydrocarbon-based Ultrafine Cement Slurry Nonreactive in Oil or Gas Zones

MOC/One<sup>™</sup> slurry uses Halliburton's unique MicroMatrix<sup>®</sup> ultrafine cement mixed with a hydrocarbon carrier fluid. The MOC/One<sup>™</sup> slurry remains inactive when contacting an oil- or gas-producing zone. The slurry remains inactive until contacted by water. Once in contact with water, the slurry remains pumpable for an additional 20 to 30 minutes before beginning to set. The delayed setting of the cement slurry is ideal for placing the ultrafine cement slurry into water-bearing formations with natural fractures some distance away from the wellbore. MOC/One<sup>™</sup> slurry is applicable up to 400°F (204°C).





 $MOC/One^{TM}$  slurry reaction process: (a) initial appearance; (b) slurry contaminated with water; (c) slurry starting to react; and (d) slurry fully reacted.

## Ideal for Near-wellbore Applications in Naturally Fractured Reservoirs

MicroMatrix<sup>®</sup> cement average particle size is ~2.5 microns. This ultrafine particle size enables the MOC/One<sup>™</sup> slurry to penetrate openings as small as 0.05 mm or sands as fine as 100 mesh, without bridging or dehydrating during placement. This makes the slurry ideal for near-wellbore applications such as:

- Sealing water-bearing formations with natural fractures
- Stopping unwanted water production coming from channels and micro-channels behind the casing
- Sealing leaks or pinhole leaks in the casing



 $MOC/One^{\rm TM}$  uses MicroMatrix  $^{\circledast}$  ultrafine cement with an average particle size of 2.5 microns

Slurry Penetration Through a 0.006-in Slot					
Slurry System	Density	% Slurry Penetrating			
	(lb/gal)	Through Slot*			
MicroMatrix Cement	12	91			
Class H Cement	16.4	0			

\* Test Conducted at 90 psi and 75°F

The ability of  $MOC/One^{TM}$  to penetrate small openings makes it ideal for near-wellbore applications in naturally fractured formation or when dealing with micro-channels behind the casing



## **Field Proven**

In the last two years, Halliburton's MOC/One<sup>™</sup> slurry has been used in more than 100 wells around the world with excellent results.

**Case History 1** – Well A is a deviated, casedhole, and perforated wellbore producing from a highly naturally fractured carbonate oil reservoir in the Gulf of Mexico (k~ 707 mD,  $\varphi$ ~5%, BHT~221°F). Well A was producing from 8547-8629 ft MD and presented excessive water production problems due to poor zonal isolation behind the

casing, suspected to be coming from an aquifer lying below the oil producing zone. Current production was 100 BOPD, 88% WC.

The treatment consisted of bullheading 90 barrels of MOC/One<sup>™</sup> slurry, deployed with Halliburton's HOS Saylor stimulation vessel. Treatment was displaced with a diesel spacer and nitrogen. Wellbore was then shut-in overnight. After the MOC/One<sup>™</sup> slurry intervention and the re-perforation of only the top part of the treated interval, Well A is producing now at **1350 BOPD**, **10% WC**.

	BFPD	BOPD	BWPD	WC%
Before Treatment	837	100	737	88
After M0C/0ne™ Slurry	1500	1350	150	10

Well A – Production rates before and after MOC/One<sup>™</sup> Slurry treatment





Production Enhancement **Case History 2** – A prolific horizontal openhole oil well drilled in a naturally fractured carbonate reservoir started producing excessive water coming from an aquifer below the payzone. The well was shut-in once watercut reached 60%, as the well would not flow because of the hydrostatic pressure from the high water production. A selective treatment was needed mainly due the inability to clearly identify the water producing fractures and having no means of mechanical isolation in the openhole section (approximately 3000-ft long). The treatment consisted of pumping 125 bbls of MOC/One<sup>™</sup> slurry using coiled tubing for placement. Treatment was overdisplaced into the formation. Following the treatment, the well flowed at 20% WC for a few days and eventually stabilized at 40% WC. This decrease in water production allowed Well B to re-establish natural flow at 1260 BOPD, 40% WC.



## For more information about how Halliburton's MOC/One<sup>™</sup> slurry can help reduce unwanted fluid production and extend the economic life of your wellbore, please contact your local Halliburton representative or email stimulation@halliburton.com.

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