

M-I-X II

M-I-X II* cellulose fiber is a superior plugging agent used to bridge and seal permeable formations in water-, oil- or synthetic-base mud systems.

Bridging and sealing permeable formations reduces the differential-pressure sticking tendencies which can cause high torque and drag or stuck pipe. The product is particularly useful for preventing differentially-stuck pipe when drilling depleted zones where high differential pressures exist. For added flexibility, M-I-X II fiber is available in fine (original), medium and coarse grades so that the optimum particle size can be selected to bridge the pores and pore throats of permeable formations. M-I-X II fiber additions have minimal effect on mud properties.

Typical Physical Properties

Physical appearance Tan to light-brown powder
 Bulk density 22-32 lb/ft3 (352-513 kg/m3)

GrindSize	Fine	Medium	Coarse
Finer than 8 mesh	-	-	>95%
Finer than 50 mesh	-	> 80%	-
Finer than 100 mesh	> 90%	< 60%	< 15%
Median (microns)	44-74	104-149	420-840

Applications

M-I-X II fiber is a superior bridging agent, field-proven to be highly effective when drilling high-permeability/ high-porosity zones with high differential pressures. Each grind size has a specially selected particle size distribution optimized to seal a wide range of formations.

M-I-X II fiber is designed to bridge and seal permeable formations, reducing the possibility of stuck pipe, controlling lost circulation and providing filtration control. It is compatible with water-, oil- and synthetic-base mud systems.

The recommended treatment is 5 to 10 lb/bbl (14 to 29 kg/m3) to reduce differential sticking tendencies. After initial treatment, periodic treatments should be used to maintain the desired concentration. Significant quantities of the medium and coarse grades will be removed by fine- mesh shale shaker screens (100 mesh or finer).

Fine-grade M-I-X II fiber is recommended for most applications due to its special particle size distribution. Very high-permeability formations, such as fractured carbonates and conglomerate zones, can require the medium or coarse products.

For see page losses, normal treatments are from 10 to 20 lb/bbl (29 to 57 kg/m3). Concentrations in the 20 to 35 lb/bbl (57 to 100 kg/m3) range are recommended for more severe lost circulation. Pilot testing is recommended before adding high concentrations because the material absorbs a small quantity of liquid when added to the mud system.

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Eastern Hemisphere	Western Hemisphere
Gamle Forusvei 43	P.O. Box 42842
N-4033 Stavanger,	Houston, Texas 77242-2842
Norway	Phone: 281-561-1300
Phone: +47-51-57-73-00	Fax: 281-561-1441
Fax: +47-51-57-74-51	www.miswaco.slb.com



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Applications (cont'd)

M-I-X II fiber should be added to the mud system through a mixing hopper into a pit with good agitation, such as the suction pit. It is a onesack product and does not require any additional additives. It is most effective when maintained at the desired concentration throughout the circulating system. However, treatment methods such as frequent periodic additions, sweeps, batch- or slug-treatments and pills have all been used successfully.

M-I-X II fiber is compatible with all mud systems and can be used in combination with other lost-circulation materials, including NUT PLUG, mica, sized calcium carbonate, gilsonite, etc.

M-I-X II fiber residue can be partially removed using standard treatments such as hydrochloric acid or alkaline hypochlorite solutions. M-I-X II fiber is more than 55% acid soluble in 15% HCl at 212°F (100°C).

Advantages

- Effective bridging and sealing agent for a wide range of formations
- Offers unique particle sizes smaller than conventional lost-circulation materials yet larger than the solids found in most mud systems
- Available in fine (original), medium and coarse grades, allowing the most appropriate particle sizes to be used
- Inert material with minimum effect on mud properties
- One-sack product with no other additive requirements
- Compatible with all mud systems and other lost-circulation materials
- Easily mixed and dispersed into the mud system
- Easily passes through most shaker screens

Limitations

- Can be removed from the circulating system by shale shakers and solids-control equipment, especially when using the medium and coarse
- grades with fine-mesh screens (<100 mesh), which requires close monitoring of shale shakers
- Biodegradable and can be subject to bacterial degradation. If fermentation is indicated, a biocide should be used at the recommended maximum treatment level
- Absorbs a small quantity of liquid when added to a mud system and can elevate flow properties when used at very high concentrations
- Treatments with additional wetting agent may be required in low stability or lightly treated oil-base muds because of the high surface area of this slightly absorbing material

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Toxicity and Handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions as described in the Material Safety Data Sheet (MSDS).

Dust can form an explosive mixture in the air. Keep away from open flames or other sources of ignition.

Packaging and Storage

MIX II fiber is packaged in 25-lb (11.4-kg), multi-wall, paper sacks).

Store in a dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

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