

# M-I GEL

M-I GEL\* viscosifier is a premium-grade bentonite (a sodium montmorillonite clay) that will yield 91 to 100 barrels of 15-cP mud per ton (1.7 m<sup>3</sup>/100 kg).

It is used as a primary filter-cake-building, filtration-control and suspension agent in freshwater systems, and has application in all water-base mud systems. M-I GEL viscosifier is a high-quality product which meets the ISO 13500 Clause 9 (formerly known as API Spec 13A, Section 9) specifications for Bentonite.

### Typical Physical Properties

Physical appearance .....	Light tan/gray-green powder
Specific gravity .....	2.3 – 2.6
Bulk density .....	48 – 52 lb/ft <sup>3</sup> (769 – 833 kg/m <sup>3</sup> )
ISO 13500 Clause 9 Specifications:	
Suspension properties (Suspension of 22.5 grams into 350 cm <sup>3</sup> water):	
Viscometer dial reading at 600 rpm .....	30, min.
Yield point/plastic viscosity ratio .....	3, max.
Filtrate volume .....	15 cm <sup>3</sup> , max.
Residue >75 micron (wet screen) .....	4% wt, max.

### Applications

M-I GEL viscosifier is used to increase viscosity and reduce fluid-loss in water-base drilling fluids. It is a cost-effective means of achieving viscosity, fluid-loss control and filter-cake quality in freshwater and seawater muds. Typical concentrations for M-I GEL viscosifier range from 5 to 35 lb/bbl (14.3 to 100 kg/m<sup>3</sup>).

As with all bentonite products, the yield decreases as water salinity increases. In muds containing more than 10,000 mg/L chlorides, the performance of M-I GEL viscosifier is significantly reduced unless prehydrated in freshwater before adding to the mud system.

### Advantages

- Hydrates more than other types of clays and is best for generating viscosity, developing gels for suspension and controlling filtration
- Small particle size, unique flat shape and high surface area of hydrated M-I GEL viscosifier provides superior filtration characteristics
- Promotes the deposition of thin, compressible filter cakes in the wellbore

### Limitations

- Performance reduced in salty (>5,000 mg/L Cl<sup>-</sup>) or hard (>240 mg/L Ca<sup>++</sup>) waters due to decreased hydration

### 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).

### Packaging and Storage

M-I GEL viscosifier is packaged in 100-lb (45.4-kg) multi-wall paper sacks, 40-kg sacks, big bags and is available in bulk.

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.



P.O. Box 42842  
Houston, Texas 77242-2842  
Tel: 281-561-1300  
Fax: 281-561-1441  
[www.miswaco.com](http://www.miswaco.com)  
E-mail: [questions@miswaco.com](mailto:questions@miswaco.com)

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