

M-I WATE

M-I WATE* weight material is a high-quality, drilling-grade barite (barium sulfate) used to increase the density of drilling fluids.

This high-specific-gravity mineral is the most widely used weight material, has application in all drilling fluid systems and meets all API specifications for barite except density.

TYPICAL PHYSICAL PROPERTIES

Physical appearance	Powder, various light colors; gray, pink tan
Density	4.1 g/cm ³ , min.
Soluble hardness (as calcium)	250 mg/kg, max.
Particles >75 micron (wet screen)	3% wt, max.
Particles <6 micron (sedimentation)	30% wt, max.

APPLICATIONS

M-I Wate material can be used to increase the density of any mud system. Mud weights up to 19.6 lb/gal (2.35 SG) can be achieved in most drilling fluids while still maintaining good flow properties. M-I Wate material is also excellent in formulating special kill fluids and barite plugs that often reach 21.5 lb/gal (2.58 SG) for well control procedures.

The amount of M-I Wate material required to increase the density can be calculated with the following formulas:

$$\text{M-I Wate, lb/bbl} = (1,435 (w_2 - w_1)) / (34 - w_2)$$

Where:

w_1 = Initial mud weight in lb/gal

w_2 = Desired mud weight in lb/gal

$$\text{M-I WATE, kg/m}^3 = [4,100 (w_2 - w_1)] / (4.1 - w_2)$$

Where:

w_1 = Initial mud weight in specific gravity

w_2 = Desired mud weight in specific gravity

An increase in volume of approximately 1.4 bbl/ton (0.25 m³/tonne) can be expected from M-I Wate material additions. Density increases can require water or base liquid dilution sufficient to adequately wet the surfaces of the added barite.

TOXICITY AND HANDLING

Bioassay information is available upon request.

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

ADVANTAGES

- Essentially chemically inert and insoluble, functions only in a physical manner.
- Does not react with other drilling fluid additives or interfere with their function.
- Minimally abrasive.

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PACKAGING AND STORAGE

M-I Wate material 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.