

Mica (F, M, C)

Description

Mica or Muscovite is a naturally occurring loss circulation material. It can be utilized in water base or oil base drilling fluids. Mica is inert and does not react with any other drilling fluid additives and is unaffected by the additions of oil, salts, acids or brines.

Applications

Mica flakes have been preferably used in water-based and oil based oil-well drillings operations as an additive mud chemical to prevent loss of circulation and seepage. Mica is specially added to seal-off the lost circulation zones. The platy structure of mica facilitates the overlapping of particles to form a layer or wall and acts as a sealant that bridges the openings. The use of mica helps to seal porous formations and contributes to regain circulation keeping the solids in suspension.

All grades can be used alone or in combination with other LCM materials in spotting fluids and high filtration squeezes that are spotted or squeezed across an identified thief zone.

Features and Benefits

- Compatible with other LCM materials
- Inert, does not react with fluid products
- Compatible with all types of fluids including oil based, brines, etc.
- Available in three grades to allow selection of particle size that is effective in controlling lost circulation.
- Economical

Typical Properties

Appearance	Solid, flakes
Moisture @100°C (%)	Less than 0.25
Specific Gravity	2.8
Solubility	Insoluble in water or oil

Recommended Treatment

The technique adopted is to mix quantities of mica flakes and granular bentonite into special batches of mud which is pumped down the hole. The drill pipe is then pulled out and the hole left undisturbed for a time being. Mica flakes tends to plate out on the walls at the lost zones and reduce the size of the holes through which the mud can pass. After a short interval, the plug is strong enough to permit circulation to resume without loss. Drilling then proceeds normally until a depth well below the lost circulation zone. Concentration will vary from 5 – 20 lb/bbl (14.2 – 57.0 kg/m³) or more according to the circumstances.

Safety and Handling

Prior to using this product, refer to the safety data sheet for information on use of personal protective equipment, safe handling, storage, transport, and disposal.

Packaging

Mica is available in 50 lb (22.7 kg) and 55 lb (25.0 kg) bags.

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