



MF-1[®] and MF-55[®]

Synthetic Polymer for the Control of Clays and Shale

Description	MF-1 and MF-55 are high molecular weight non-ionic polyacrylamide designed to inhibit clays and shale. MF-1 is a dry power while MF-55 is a liquid emulsion form of the material.
Function	MF-1 and MF-55 's primary function is to minimize the disintegration and dispersion of clays and shale. This will enable larger solids to be transported to the surface for removal and improve well bore stability. MF-1 and MF-55 improved rheology by helping reduce the buildup of colloidal size solids. They are also used as selective flocculants in clear water drilling and low solids, non-dispersed systems.
Features	MF-1 and MF-55 do not increase the plastic viscosity and yield point, as anionic polyacrylamide will. This enables optimum rheology and allows their addition in adequate quantities for shale inhibition. They can be added to high solids fluids without creating unmanageable viscosity. MF-1 and MF-55 enable optimum rheology control with polymer viscosifiers, such as KELZAN XC[®] , KELZAN XCD[®] , XANVIS[®] , and BIOZAN[®] .
Mixing	Add MF-1 slowly through the hopper to insure complete mixing. MF-55 may be slowly added through the hopper or directly into an agitated suction pit to insure an even distribution of the polymer. Do not add MF-55 directly into a non-agitated pit as the polymer will partially hydrate and settle in quiet areas.
Concentration	An initial treatment of 0.1-0.5 lb/bbl MF-1 or 0.03-0.10 gal/bbl (0.25-0.75 lb-liquid/bbl) MF-55 is recommended prior to drilling into the hydratable shale section. Maintenance treatment levels per 100 feet of hole drilled will vary from 2 to 10 lb MF-1 , 1.0 to 4.0 gal MF-55 depending upon the hole size and condition of cuttings. A "balling" of the cuttings should be maintained across the shaker screen.
Limitations	Some polymer loss will occur due to encapsulation of cuttings and through filtration. MF-1 and MF-55 will function at temperatures up to 400°F (205°C). Hardness below 200 mg/L and low salinity will improve performance as selective flocculants. Compatibility testing is recommended with all but standard drilling fluid additives.
Toxicology and Safety	MF-1 and MF-55 are non-hazardous materials and can safely be used in environmentally sensitive areas.
General Information	Chemical Name - Non-ionic Polyacrylamide Bulk Density - MF-1 40-60 lb/ft ³ , MF-55 8.4 lb/gallon Appearance - White powder and white to tan colored liquid DOT Classification - Non-hazardous Packaging: MF-1 - twenty five (25) 2 lb bags per 50 lb box MF-55 - 55 gallon (465 lb net) drums and 5 gallon plastic (42 lb net) pail

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