

PRODUCT DATA SHEET

Organic Polyhydrogen Acid for Acidizing – MF**Product Introduction**

Polyhydrogen Acid (MF) is a multi-stage acid system developed to meet the requirements of deep acidizing operations. It is a retardant acid with multi-level ionization capability. Each MF molecule contains multiple hydrogen ions (H^+), but the reactivity of these H^+ ions varies according to their positions, with each ionization stage having roughly the same activity.

During application, under formation conditions, the most active first-stage H^+ ions are released first to provide acidity, followed by subsequent ionization stages. This ensures a gradual release of H^+ ions and a balanced hydrogen-ion concentration throughout the entire reaction process, effectively reducing the damage caused by strong acids in the near-wellbore zone. As a result, the acid system gains enhanced deep-penetrating stimulation capability. In addition, MF has strong chelating ability, anti-emulsification properties, and acid-residue resistance. It also exhibits strong adsorption on clays and rocks, making it an excellent retarder for HF acid systems.

Application Characteristics

- MF is used in combination with liquid polyhydrogen acid component MH-5. It is suitable for formations such as mud shale and sandstone. When used with HCl acid, it serves as an effective retardant mud acid, especially suitable for formations with severe near-wellbore damage while deeper zones remain insufficiently treated.
- The recommended dosage is 2%–10%, or determined through laboratory testing based on actual operational needs.

Technical Specifications

Appearance	White crystals
Density (g/cm^3):	≥ 1.0
Dissolution rate of $CaCO_3$ per gram using 40% MF + MH-5 mixed solution (60°C, 2 h):	$\geq 20\%$
Dissolution rate of $CaCO_3$ per gram using 40% MF + MH-5 mixed solution (60°C, 4 h):	$\geq 30\%$

Packaging, Storage and Transportation

- The product is packed in double-layer woven bags with an inner plastic liner, or in triple-layer composite bags, each with a net weight of 25 kg.
- The warehouse for storing this product must be well-ventilated, dry, and clean.
- Shelf life: Two years.