

SGA Crosslinker KMA024

1. Introduction

The reaction of hydrochloric calcium carbonate is very vigorous and is even faster at very high temperature. This will result in the stimulation of the highest permeable area without stimulating other sections of the productive zone. To get uniform stimulation of the entire zone, several methods are employed, and diversion using an in-situ gelled acid is very effective.

In-situ gelled acids are generally a cationic polyacrylamide crosslinked with a trivalent metal ion crosslinker such as KMA024 is used. In the acidic medium, the metallic ion will not crosslink with the polymer. When the acid is spent, it reacts with CaCO_3 , the pH will go up, and results in very high viscosity. This viscosity will help to divert the newly pumped acid into unstimulated zones and result in the uniform stimulation of the entire pay zone.

The polyacrylamide crosslinked with KMA024 is very viscous and needs to be broken down to low viscosity for the well to produce. The KMA022B added in to the formulation at a pH above 5 will chelate with the crosslinked metal resulting in the de-crosslinking and breaking of the gel.

2. Physical Properties and Hazards

Additives	Form	S.G.	Water Solubility	Health Hazard	Physical Hazard	pH
KMA024	Red brown liquid	1.30-1.40	Soluble	Eyes, skin, mouth	Corrosive	< 1.5

3. Chemical Properties and Application

For the in-situ gelled acid system, iron crosslinker KMA024 is mixed with the cationic polyacrylamide and a breaker. The resulting diverting acid is a thin solution. When the acid is spent, and the pH rises to around 3, the metal crosslinker KMA024 reacts with the polymer and results in high viscosity. On further expenditure, at a pH above 5, the iron control agent KMA022B will calculate with iron, and thus de-crosslink the system resulting in low viscosity. Normally, 15% to 28% HCl is pumped in stages with the gelled acid system to get a uniformly stimulated wellbore. KMA024 is dispersible in acids. KMA024 is compatible with most additives and acid systems. Lab testing is required when acids other than HCl-based are used. Special attention is required for KMA024 design for sour gas (H_2S) wells.

4. Treatment

The minimum concentration of crosslinker KMA024 used in the field is 2.5 Gal/1,000 Gal.

5. Packaging

KMA024 is supplied in 55 gallons high density polyethylene (HDPE) drums. Keep it away from extreme conditions such as places near flames, direct sunlight and excessive moisture.