

Acid Gelling Agent KMA051

1. Introduction

Carbonate formations are generally heterogeneous and acids tend to treat high permeability zones instead of low permeability ones. Either mechanical or chemical diversion are therefore required in acidizing treatment of carbonate reservoirs. In-situ gelled acid such as NISGA is one of the chemical diversion techniques used for carbonate acidizing.

KMA051 is an effective acid gelling agent specifically developed for NISGA systems. The rheological profile introduced by the crosslink reactions between acid gelling agent KMA051 and crosslinker KMA050 is crucial for NISGA to provide effective diversion in carbonate acidizing treatment.

2. Physical Properties and Hazards

Additive	Form	Specific Gravity	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KMA051	White Powder	1.30-1.50	Soluble	-	Eyes	Dust, Water Slick	6.0-7.0 (1%)

3. Chemical Properties and Application

Crosslink reactions between KMA051 and crosslinker KMA050 highly depend on the pH of the fluid system. In fresh acids, KMA050 will not crosslink KMA051, resulting in low friction loss while pumping the acids. When acids react with CaCO_3 , pH will rise and crosslink reactions take place between KMA051 and crosslinker KMA050. Spent NISGA is highly viscous and enables the diversion of the new acids from high permeability zones to low permeability ones, resulting in homogeneous stimulation of the entire carbonate formation.

KMA051 is engineeringly developed and compatible with other key additives in NISGA systems such as crosslinker KMA050, iron control agent KMA053 and breaker KMA052. 15% HCl is normally pumped in stages with NISGA to treat the carbonate reservoir uniformly at BHST up to 300°F.

4. Treatment

The concentration of KMA051 ranges from 30 to 100 ppt depend on the bottom hole temperature and the concentration of acids. The higher is the temperature, the more KMA051 is required to achieve the required performance.

5. Packaging

KMA051 is supplied in plastic-lining bags with net weight of 25 KG/bag.

It should be stored in shaded areas with good ventilation. Keep it away from high temperature, humidity and direct sunlight.