

NISGA Crosslinker KMA050

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. Crosslinker KMA050 plays important role in NISGA technology. It is a non-iron crosslinker that minimizes the potential formation damage caused by iron ions.

2. Physical Properties and Hazards

Additive	Form	Specific Gravity	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH (35wt.%)
KMA050	White Powder	1.40-1.60	Soluble	-	Eyes, Skin, Oral	Dust	4-5

3. Chemical Properties and Application

Crosslink reactions between KMA050 and polyacrylamide gelling agent highly depend on the pH of the fluid system. In fresh acids, KMA050 will not crosslink with the polymer, resulting in low friction loss while pumping the acids. When acids react with CaCO_3 , the pH will rise and crosslink reactions take place between KMA050 and gelling agent. 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.

KMA050 is engineeringly developed and compatible with other key additives in NISGA systems such as acid gelling agent KMA051, 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

35 wt.% KMA050 aqueous solution should be prepared in the field before use. The recommended concentration of 35 wt.% KMA050 aqueous solution is 2-6 Gal/1,000 Gal.

5. Packaging

KMA050 is supplied in plastic-lining bags with net weight of 25 KG/bag.

Do NOT store 35 wt.% KMA050 water solution for more than 10 days in normal storage conditions.

KMA050 itself should be stored in shaded areas with good ventilation. Keep it away from high temperature, humidity and direct sunlight.