

Low to Medium Temperature Activator KWC002

1. Introduction

DIG delayed inorganic gelation system is a solution that maintains a very low viscosity until an internal activator causes a gel to form. Several unique features allow this gel to be placed deep into the formation matrix where it can effectively block permeability.

The DIG solution is particularly useful for treating production and injection problems that require reduction of permeability on the order of tens of feet around the wellbore such as water coning during production, water fingering through high-permeability streaks, injection and sweep inefficiency caused by thief zones in injection wells.

KWC002 is a low to medium temperature activator to react with KWC001 gelling agent to form a rigid DIG gel with high viscosity.

2. Physical Properties and Hazards

Additive	Form	S.G.	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KWC002	White Crystal	1.25-1.45	Soluble	>93	Eyes	None	8.0-9.0 (2 wt.%)

3. Chemical Properties and Application

The aqueous solution of KWC001 is waterish and the initial viscosity of DIG will be that of the mix-water. The reactions between KWC001 and activator KWC002 and/or KWC003 raise up the viscosity of the DIG solution with time that is also dependent on the temperature. The DIG solution starts to build up viscosity when the pH of the solution reaches 5.5 to 7.5 range.

The DIG water shut-off systems are mainly composed of KWC001, KWC002 and/or KWC003 to be applied to the formation temperature up to 250°F. KWC002 or KWC002/KWC003 combination is used while application temperature is less than 190°F.

4. Treatment

KWC002 concentration can range from 50 to 500 lbm/1000gal DIG fluid. Increasing KWC002 concentration increases the gel-time, but syneresis could happen if KWC002 is overloaded.

5. Packaging

KWC002 is supplied in plastic-lined bags with net weight of 25 kg/bag or in FIBC jumbo bag. It should be stored in shaded areas with good ventilation.