

Gelling Agent KWC001

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.

Gelling Agent KWC001 is an inorganic compound that can be activated by KWC002 (low to medium temperature activator) or KWC003 (high temperature activator) to form a rigid gel with high viscosity.

2. Physical Properties and Hazards

Additive	Form	S.G.	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KWC001	Clear Liquid	1.23-1.53	Soluble	>93	Eyes	None	3-5

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 is used while application temperature is less than 190°F and use KWC003 is temperature is above 190°F.

4. Treatment

KWC001 gelling agent concentration can range from 625 to 1250 lbm/1000 gal (75 to 150 kg/m³). Increasing the gelling agent concentration increases the gel-time as well as the gel strength.

5. Packaging

KWC001 is supplied in 5 gallons high density polyethylene (HDPE) drums or 53 gallons HDPE drums. It should be stored in shaded areas with good ventilation.