

WATER GELLING AGENT – WGA-2

WGA-2 is a Gaur gelling agent that self-hydrates for continuous mixing or pre-gelling. Dispersants and pH buffers allow easy, lump-free mixing of WGA-2 to quickly develop maximum viscosity. WGA-2 is normally used at concentrations of 20–50 lbs per 1,000 gallons.

WGA-2 improves fluid rheology by increasing viscosity of the fracturing fluid. Increasing viscosity creates wider fractures, which changes fluid viscosity in the fracture and improves proppant placement. With the increase of viscosity of WGA-2 gelled fluids, proppants are carried further from the well bore, increasing the drainage radius. The possibility of screen-outs are reduced and fracture conductivity is increased because the viscosity decreases proppant settling rates due to gravity, both while pumping and at the end of pumping.

WGA-2 helps to stabilize foam fracs by strengthening the thin water film surrounding the nitrogen bubbles, making the water less likely to drain out of the foam structure.

WGA-2 is readily cross-linked with a borate or antimony cross-linker. Upon crosslinking, the resultant fluid can handle high concentrations of proppant and provides increased fracture width and penetration.

Rheology – Linear Gel

30 pounds / 1,000 gallons – Viscosity Development

FANN 35 RPM	1 min	5 min	15 min	30 min
300	13	15	18	18
100	8	10	10	10

40 pounds / 1,000 gallons – Viscosity Development

FANN 35 RPM	1 min	5 min	15 min	30 min
300	10	15	24	24
100	7	9	14	15

The 300-rpm reading corresponds to fluid moving through the fracture, while 100-rpm reading represents the viscosity of leak-off fluid.