Quality Polymers from

RANTEC CORPORATION
PO Box 729
Ranchester, WY 82839

Phone (307) 655-9565
www.ranteccorp.com
Email: rantec@ranteccorp.com

28 Years of Innovation

Rantec G150™ BioPolymer

DESCRIPTION

G150 is Rantec's guar gum-based natural polymer (galacto-mannan) for biopolymer liquid shoring fluids (BLSF) and drilling muds. Molecular weight is in the range of 1.5 to 2.0 million. **G150** BLSF has been used extensively for geo-technical stabilization of extraction trenches during excavation and construction and well bores during drilling. **G150** is biodegradable and can be broken down completely thus maintaining the permeability of those soils and producing formations. Rantec has more than 16 years of experience in supplying **G150** for use in liquid shoring and drilling applications. As part of Rantec's continued improvement program **G150** in now easier to mix, less dusty and produces more viscosity per pound.

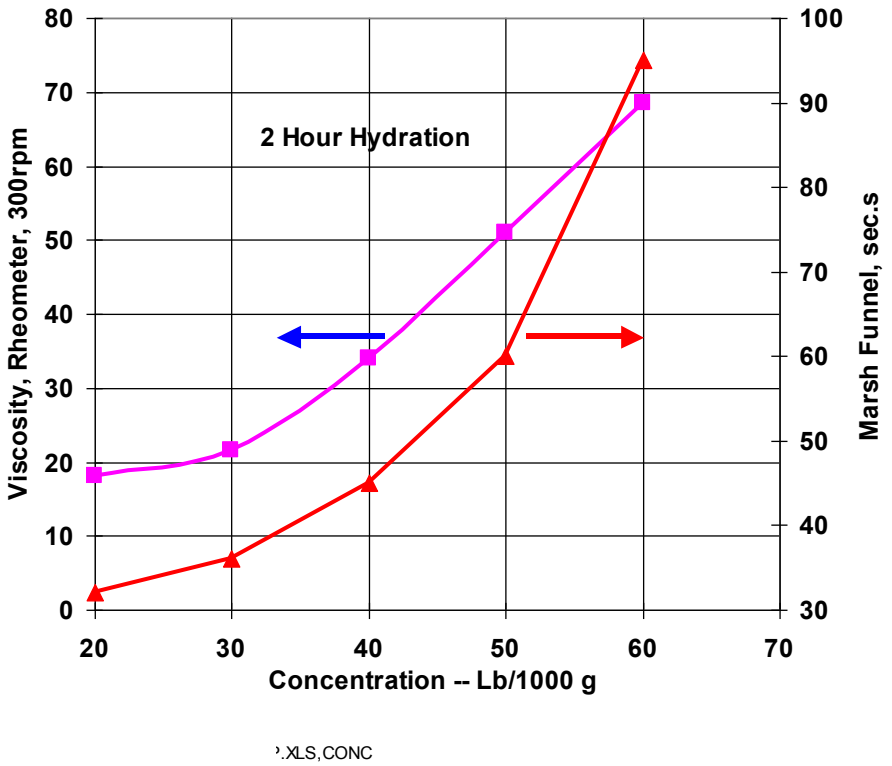


Figure 1: Viscosity with Concentration shows fresh water viscosity for a range of concentrations of Rantec **G150** biopolymer.

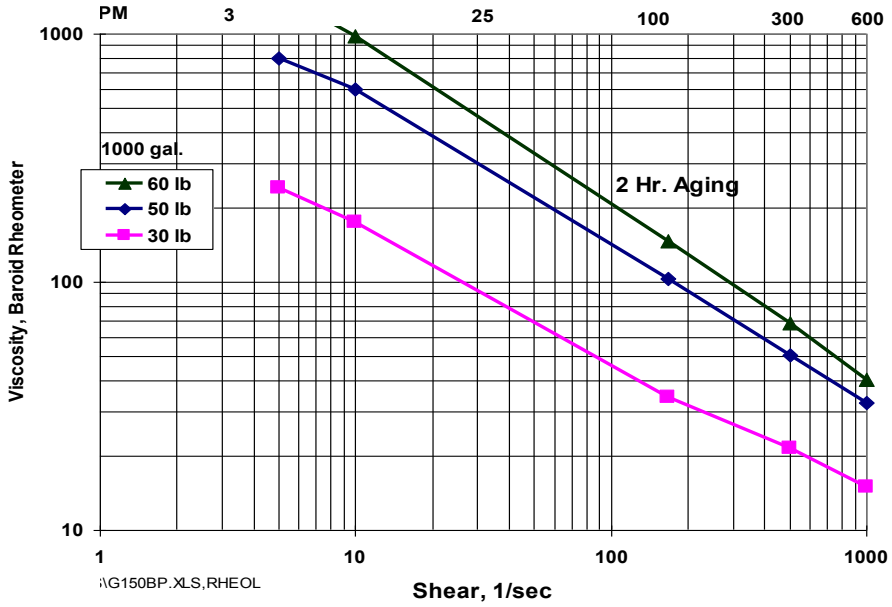
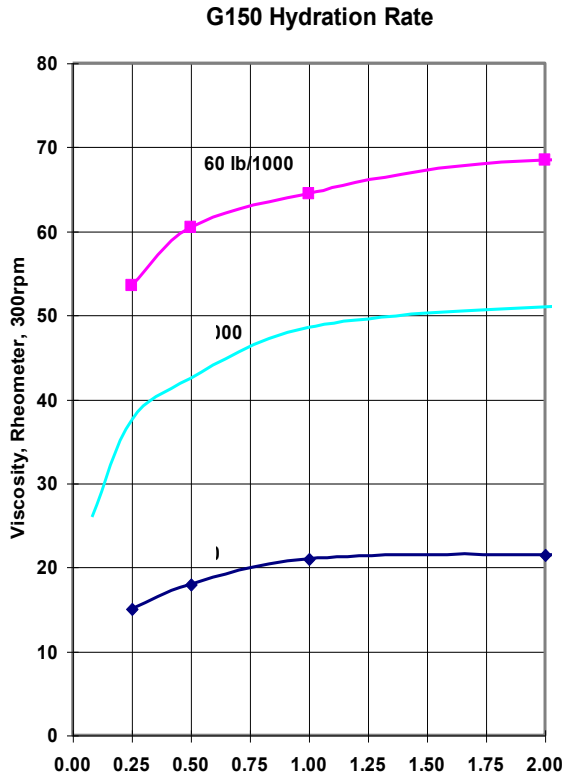


Figure 2: Rheology

Rantec **G150** BLSF is a non-Newtonian "shear-thinning" fluid. At low shear rates a gel is apparent, while under high shear, viscosity is very low.
Figure 2: Rheology demonstrates these rheological characteristics of the fluid.

High viscosity in the gel state or low shear condition is important for prevention of soil or water movement, while low viscosity is important under higher shear conditions such as mixing and pumping.

G150 fluids immediately recover original viscosity as soon as shear is relieved. High shear will not destroy the **G150** polymer molecule as can occur with many synthetic polymers.



YIELD AND MIXING

Typical design mix for G150 in difficult conditions would be:

G150	50 to 70 lb/1000 gallons
Busan 1059WS	1.2 to 2.0 lb/1000 gallons
Soda Ash	5 to 8 lb/1000 gallons to maintain pH 10
Lime	1 to 3 lb/1000 gallons if required to maintain pH 10

Rantec **G150** is designed to provide easy mixing and good yield of viscosity. **G150** yields workable viscosity in about 1 hour and is fully yielded in about 4 hours. **Figure 3: Viscosity Development** demonstrates the development of viscosity through a period of 24 hours. In 1 hour **G150** has yielded 90% of its viscosity. **G150** responds well to high shear mixing. Additional shear will accelerate the rate of viscosity yield.

Rantec will provide assistance in choosing equipment suited for good mixing of **G150** fluid. Systems can be engineered for a wide range of capabilities from manual addition to fully automated systems.

IN USE CHARACTERISTICS

Typical Use Rate – 60 lb/1000 gallons (0.72% w/w)
Odor of Broken Slurry – Not noticeable under aerobic conditions. May become putrid under anaerobic conditions.
BOD of Broken Slurry – Typically approximately 1200 ppm.
Useful Life of Slurry – 3 to 10 days depending upon temperature, soil conditions and additives
Degradability – Approximately 10 to 12% insoluble residue after enzyme break

PACKAGING

Rantec **G150** is available in packaging from 20 lb pails to 2000 lb super sacks. The most common packaging is 50 lb multi-wall paper bags. All packages are loaded on pallets and stretch wrapped to protect the product. For outside storage pallet covers can be provided on request.

SAFETY

G150 is a natural organic polymer often used in food ingredients as well as industrial applications. It is non-polluting and non-toxic. It is totally biodegradable, so disposal problems are reduced. Preservative can be used for long term applications. **G150** is non-mineral: therefore, it does not contaminate trenches, surroundings or assays.

RANTEC CORPORATION
17 KUKUCHKA LANE
RANCHESTER, WY 82839

Phone 307-655-9565 **Fax 307-655-9528** **email rantec@ranteccorp.com**