

STEP-XB83 is a delayed crosslinked borate system designed for blends that meet the requirements of Directive 083¹ to protect non-saline aquifers. All additives in the blend pass the Microtox toxicity test² and are designed to minimize environmental impact.

The crosslinked fluid utilizes powder guar removed of toxic carrier fluid, and consists of Microtox friendly foamers, clay controls, non-emulsifiers, and breakers. STEP-XB83 is designed for use at a bottom hole temperature of 20°C to 55°C.

The standard blend consists of the following:

- SWG-101 powder guar
- SBX-7 Delayed borate crosslinker
- SCS-1 clay control
- SNE-1 non-emulsifier
- SBE-2 enzyme breaker or SBO-3 oxidizing breaker

The recommended water temperature for the system is 20°C to 30°C. During winter months the water temperature may need to be raised depending on ambient temperature and maximum proppant stage.

Operational Benefits:

- Powder guar gel hydrates rapidly
- Additives pass Microtox testing
- Crosslink time and final viscosity can be customized based on well and water conditions
- Forms a shear stable, temperature-tolerant crosslinked gel
- Dry gellants eliminate the use of oil based slurries, improving environmental profile
- Powder gellants are more economical than equivalent liquid base version
- A shear stable system, capable of rapid healing after high shear events
- Lower surface treating pressures by using the delayed crosslink
- N₂ can be used to energize the system
- Low residue system

Physical Data:

Properties	
Hydration Time	3 minutes
pH	8.5 – 10.0
Vortex Closure	15-20 seconds
Crosslink Time	1.0-6.0 minutes

1. Alberta Energy Regulator (2013). Directive 083: Hydraulic Fracturing – Subsurface Integrity, Section 4.3.2 Nonsaline Aquifer Risk Assessment.
2. Alberta Energy Regulator (2016). Directive 050: Drilling Waste Management, Appendix 5: Toxicity Testing.