Rantec G150 Biopolymer, Biodegradable Liquid Shoring, General Characteristics and Use Procedures

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Biopolymer liquid shoring has been utilized in the US for more than 16 years and specifically for PRB installation for the past 5 years. Major installations requiring depths of 25 ft. and deeper have relied on Rantec G150 as the biopolymer in liquid shoring for the PRB construction.

G150 produces unique fluid characteristics specifically valuable in maintaining excavation stability. Hydrostatic head, chemical bonding and viscosity all play roles in the stabilizing of deep narrow excavations. Compatibility of the product has been established in column tests done by others. Breakdown of the biopolymer and development of the media is essential to performance of the PRB. G150 is specifically easily degraded to simple compounds, its chemical structure is a complex carbohydrate consisting of galactomannan (mannose and galactose sugar), which is easily degraded by enzymes, microbes and oxidizers. Enzymes and microbes are generally acceptable for PRB's.

Pre-construction design includes pre-testing, mix design and preparation for development. Site factors including soil, ground water and mix water should be tested for compatibility against the proposed design mix and adjustments made accordingly. Means of contacting breaker compounds are designed and prepared prior to start of construction.

Preparation of the fluid requires adequate mixing equipment to wet, mix and hydrate the G150 powder. Typical field mixing equipment will include water supply, mixing eductor, mixers and storage capacity compatible with the excavator and site conditions. Stabilization chemistry is utilized to prevent premature spoilage of the slurry. Quality control procedures include measurement and recording of viscosity and pH.