

Lightning fracturing fluid system

Improve stimulation performance and longevity

Applications

- Hydraulic fracturing operations
- Energized fracturing operations with nitrogen
- Frac-pack operations

Features and Benefits

- Superior fluid efficiency
 - Minimizes pad volumes
 - Reduces total frac fluid required
- High apparent viscosity
 - Improves proppant transport
- Can be formulated for crosslink times of up to several minutes
 - Minimizes hydraulic horsepower requirements
- Allows controlled, efficient polymer break with Baker Hughes EnZyme™ and Baker Hughes HighPerm™ encapsulated breaker technologies
 - Minimizes formation damage
 - Maximizes fracture conductivity
- Easily prepared
 - Useful in batch-mix or continuous-mix processes
- Compatible with most Baker Hughes StimPlus™ products
 - Addresses flow assurance problems related to scales, paraffin, wax, and bacterial contamination
- Qualified member of the SmartCare family of environmentally responsible solutions
 - Minimizes environmental impact without sacrificing performance
 - Increases transparency of chemical composition to stakeholders
 - Improves research and development efforts to proactively expand the Baker Hughes portfolio of environmentally responsible products

The Baker Hughes **Lightning™ fracturing fluids** are high-performance, guar polymer, borate-crosslinked systems designed for applications up to 300°F (149°C). The high-yielding Baker Hughes GW-3 guar polymer provides the fracturing performance of conventional systems with substantially reduced polymer loadings. Lightning fracturing fluids can be used with a crosslink delay additive to customize crosslink times.

Note: The Lightning fracturing fluid system is a member of the Baker Hughes **SmartCare™ family of environmentally conscious chemical solutions**, which helps ensure that clients' technical performance and environmental priorities are achieved. Evaluated by the Baker Hughes Environmental Services group's chemical assessment

review process, this product has been methodically vetted for health, safety, and environmental criteria, performance, consistency, compatibility, and value.

Safety Precautions

Refer to material safety data sheets (MSDS) for handling, transport, environmental information, and first aid.

References

- MSDS
- SmartCare system profile

Typical properties

| | |
|----------------------------------|------------------------------|
| Typical temperature range | 60 to 300°F (16 to 149°C) |
| Typical pH range | 9.5 to 11.5 |

