

# AquaStar fracturing fluid systems

## Eliminate polymers to improve productivity

### Applications

- Hydraulic fracturing operations
- Carrier fluid for the Baker Hughes **Liquid LiteProp™ system**
- Foamed fracturing treatments with carbon dioxide, nitrogen, or binary systems, including the Baker Hughes **VaporFrac™ services** in low-pressure formations

### Features and Benefits

- Contains no polymers
  - Maximizes proppant pack conductivity and formation permeability
- Reduces surface tension
  - Eliminates the need for a breaker, except in dry gas wells
- Fluid returns may be recyclable in subsequent fracture operations
  - Reduces fresh water usage
  - Simplifies water management
- Develops full viscosity rapidly
  - Improves proppant transport through surface equipment
- Compatible with most mix waters, including produced water and flowback water
  - Facilitates water management and reduces associated costs
- 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 **AquaStar™ family of fracturing fluids** are polymer-free, surfactant-gelled, water-based fracturing fluid systems. They provide adequate viscosity for good proppant transport with minimal risk of damage to the formation and proppant pack. The fluids are environmentally preferred because of their content and their ease of reuse and recycling, which minimizes impact on fresh water sources. Applicable up to 275°F (135°C) when foamed, AquaStar fluids develop full viscosity rapidly and are shear-stable with no degradation by high pump rates or perforation shear.

The fluids' basic properties also provide several benefits that simplify operations by eliminating the need for additives such as flowback surfactants and friction reducers. The fluids break with temperature or in contact with oil, condensates, or water, so breakers may not be required, although they are available for use as needed. In some cases, AquaStar fluid returns from operations in dry gas wells can be recycled as a base fluid for subsequent operations.

Note: These fluids are marketed as the **AquaClear™ systems** in Canada. The fluids are members 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 and handling

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

### References

- MSDS for system components
- The SmartCare system profile

### Typical properties

Typical temperature range	Up to 275°F (135°C)
Typical pH range	4 to 10