

# Biocide KHF003

## 1. Introduction

The mixing water for the preparation of fracture fluid should be free of bacteria and enzymes. Either can cause degradation of the polymer and premature viscosity break. They can also prevent viscosity development. Bacteria produce enzymes to which most guar or guar derivative polymers are particularly sensitive.

## 2. Physical Properties and Hazards

Additives	Form	S.G.	Water Solubility	Health Hazard	Physical Hazard	pH
KHF003	Colorless to yellowish liquid	0.95-1.00	Soluble	Eyes, skin, inhalation	Flammable	7.0-8.0

## 3. Chemical Properties and Application

The biocide KHF003 is added to the mix-water as early as possible before the bacterial problem develops. It can be continuously mixed during the treatment to prevent bacterial growth in the reservoir, but it will be of little or no benefit to the stability of the fracturing fluid if added by continuous mix. This product will kill bacteria but cannot remove enzymes.

When using polymer-free systems (such as SurFrac), biocides or bactericides are NOT required because KHF003 may interfere with rheological properties of SurFrac fluids.

KHF003 is compatible with most additives used in crosslinked guar based fracturing fluids, but certain additives such as scale inhibitors, demulsifiers especially enzyme breakers might not be compatible with KHF003. Laboratory testing is required before using these additives together in fluid systems.

## 4. Treatment

The recommended concentration for KHF003 is 0.25-0.75 Gal/1,000 Gal of mixing water.

## 5. Packaging

This product is supplied in 55 gallons high density polyethylene (HDPE) or steel drums. Keep it away from extreme conditions such as places near flames or direct sunlight.