

Foaming Agent KHF022

1. Introduction

Surfactants are molecules that reduce surface and interfacial tensions between water and oil phases. Foaming agents are composed of one or more surfactants specifically tailored to stabilize the interface between the internal and external phases of a foam. KHF022 is a superior foaming agent and is highly recommended for foam fracturing and coiled tubing cleanout applications. Foam tends to use much less volume of water and is good for fracturing in gas wells and in water sensitive formations.

2. Physical Properties and Hazards

Additive	Form	S.G.	Water Solubility	Health Hazard	Physical Hazard	pH
KHF022	Light yellow liquid	0.90-1.00	Soluble	Eyes, skin, inhalation	Fire	9.0-11.0

3. Chemical Properties and Application

The foaming agent can generate a stable foam in the presence of gas and water with or without salt/acid or similar. The foaming agent can be injected with the fluid or introduced later using coiled tubing. KHF022 is unique in chemical nature so that it not only acts as a foaming agent, but also reduces surface tension and interfacial tension of the stimulation fluids and changes the wettability behavior of the fluids in rock matrix. KHF022 can be used to foam water, but the stability of the foam can be increased significantly when a linear gel with 20 lbs/1,000 gal guar is used. Foam fluids also help in the faster unloading of the well after a fracturing treatment.

4. Treatment

1 to 5 Gal/1,000 Gal of KHF022 is sufficient to create a very stable form for fracturing and coiled tubing cleanout. This fluid can be energized or foamed with Nitrogen or Carbon Dioxide. Oil and other organic solvents can lower the stability of foams.

5. Packaging

KHF022 is supplied in 5 gallons high density polyethylene (HDPE) pails or 55 gallons steel drums. Keep it away from extreme conditions such as places near flames or direct sunlight.