

FinofFoam-D

Foamer for Deliquification of Gas Wells

Product Description

As gas and condensate fields mature, the reservoir pressure declines and amount of produced water increases. Overtime, this decreased pressure and increase in water results in the accumulation of liquid in the wellbore, unstable gas production and consequently cease the production. There are several methods for liquid loaded gas well, such as velocity strings, gas lifts and foamer injection. One of the most commonly used method to mitigate the liquid loading problem, is the use of foamer injection. By injecting the foamer into the tubing, the surface tension of the produced liquid will be reduced and leads the formation of foam. The foam has a lower density than the produced liquid, such that it can be more easily produced to the surface.

FinofFoam-D is a concentrated foamer additive designed to produce high quality, stable foam and interfacial reduction under a wide variety of field conditions. This product is recommended for deliquification of gas and condensate wells. Complementary foaming agent, FinofFoam-DB is recommended for deliquification wells producing heavier brines over 60,000 ppm TDS.

Features and benefits

- Unload water and condensate from gas wells
- Reduce hydrostatic pressure to maximize gas production
- Eliminate the need for artificial lift mechanisms
- Stabilize the gas production decline curve
- Unload fluids with high level of condensate

Dosage

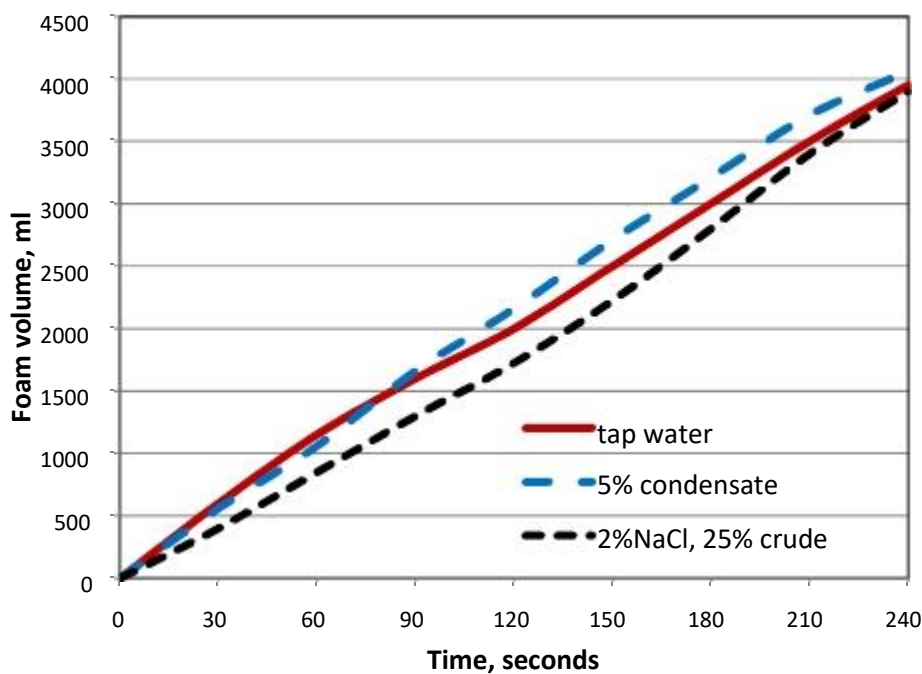
FinofFoam-D should be diluted 1:4 to 1:9 with fresh water or low TDS produced water. The solution should be continuously injected down the casing annulus at the rate 500 to 5000 ppm. In less severe cases, a weekly slug of 1 to 5 gallons down the annulus may be effective.

Typical Physical Properties

Form	Liquid
Density	1.047 g/cm ³
Pour point	<-10°C (14°F)
pH	7-8
Solubility	Water, brine up to 6% NaCl
Ionic Charge	Anionic

Performance Testing

Prepare 400 ml of tested foaming agent solution in 4 L graduated cylinder, 0.1% recommended. Add 5-50% hydrocarbon, condensate or crude oil. Insert a sparger to the bottom of the cylinder and start gas at constant flow rate i.e. 1 L/min. Record foam volume reading every 30 seconds until the cylinder is full or the foam volume becomes constant. Remove the sparger, record half life time when half of the liquid in foam collects to the bottom. Record the volume of foam remaining in the cylinder at half life time.



Foam volumes with 0.1% FinofFoam-D in various environments. Hydrocarbons have a minimal effect on foam volume

Foam Half Life Times: Tap water $T_{1/2}$ >6 min
 Tap water with 5% condensate $T_{1/2}$ =7 min
 Tap water with 2% NaCl and 25% West Texas crude oil $T_{1/2}$ =3:30 min



Foam generated with 25% crude oi

