

# Paratene™ HFA

“Hydrocarbon Foamer”

## Description

Paratene™ HFA is a blend of flourosurfactants designed to aid in the foaming of hydrocarbon liquids. Paratene™ HFA has been found to effectively form stable foams with hydrocarbons including heavy mineral oils, diesel fuel, petroleum condensates and middle distillate naphthas.

Paratene™ HFA can be used in making foams for drilling fluids, fracturing fluids and for unloading hydrocarbon fluids from gas wells.

## Features and Advantages

- ❑ **Foams hydrocarbon liquids**
- ❑ **Excellent foam quality**
- ❑ **Excellent Stability**
- ❑ **Very low surface tension Solutions.**
- ❑ **Used to create a non-damaging foam**

## Typical Physical Properties

<b>Appearance</b>	Amber liquid
<b>Specific Gravity</b>	~0.76
<b>Flash Point</b>	>95°C
<b>pH</b>	10
<b>Freeze Point</b>	0°C
<b>Ionic Character</b>	Nonionic

## Methods of Application

Paratene™ HFA is added to the hydrocarbon at concentrations varying with the type of hydrocarbon and the quality of foam desired. The table below shows and example the amounts of foamer required in diesel fuel.

<b>HFA (Vol. %)</b>	<b>Half Life (sec.)</b>	<b>Foam Quality (%)</b>
0	1	34
1.0	230	50
1.50	865	60
2.00	3000	70

Paratene™ HFA should be tested prior to use to determine the concentration required for the application.

## Unloading Wells

Paratene™ HFA can be used to unload condensate or crude oil from production wells by batching or continuous addition. The amount of Paratene™ HFA required will vary both on the composition of the crude oil, the depth of the well and the gas flow rate. A typical continuous injection concentration would be in the order of 1.0 to 2.5 litres of Paratene™ HFA per cubic meter of oil. Injection rates should start initially high and then reduced to a level where well unloading occurs without excessive foaming in surface equipment. Batch treatment sizes would be larger because of loses on the annulus, and we suggest that a minimum batch size of 5.0 litres of Paratene™ HFA per cubic meter of oil or condensate be used as an initial guideline.

## Safety and Handling

Paratene™ HFA is toxic. It can cause serious injury or death if ingested.

Refer to the MSDS for details.

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