

PRODUCT BULLETIN:

VISCOLITE-310/ VISCOLITE-310HT Surfactant/Enzyme/ Nano particles

DESCRIPTION:

Aguila Business Management offers VISCOLITE-300 series products as an elite heavy oil treatment of proprietary proteins, surfactant, and nano particles to give oil penetration and dispersion for heavy oils. Designed for EOR treatment of heavy oil.

VISCOLITE-310 was designed to help penetrate low gravity oil at 6 to 15 API. The protein penetrates the oil and carries the surfactant and nano particles into the oil to help change the viscosity of the oil. The special added nano particles help break up the oil into smaller droplets making the oil more mobile and helps it separate from water more efficiently. This helps make the secondary recovery easier and more effective. The nano particles have a Brownian motion effect and adhere to the formation rock leaving it water wet and repelling the oil droplets.. This also helps oil flow across the formation faster and longer to help sustain better production numbers longer.

CHEMICAL COMPONENTS

- 1. NANOPARTICLES:** The nanoparticles are a silica based, positively charged particle which is designed for penetration into oil and gas formations. Since they are the size of the cell wall of a red blood cell, they are able to penetrate far into the formation, and through Brownian motion leave the rock water wet and repel the oil droplets away from the formation.
- 2. SURFACTANT:** This is a laurel sulfonate which creates an emulsion between the oil and the water to drop the viscosity of the oil temporarily.
- 3. ENZYME:** This is a proprietary protein which penetrates the oil and carries the other components into the oil to allow the decrease in viscosity to occur.

HAZARDS

This is a non-regulated product meaning it poses no threats to serious toxic effects human or the environment.

OPERATION

After pumping into the formation shut in for 3 to 7 days. This product can be pumped down the back side with the pump set in the up position and the stuffing box locked down. But keep bull head pressures below 350 to 450 PSI.

This product may damage hurt clay formations due to its fresh water nature. Therefore clean production water must always be used to displace in any low level clay formation or

by using use our Clay Stay 2 additive.

The product should never be used in wells with no water in the production and it is best used in wells with 20% water cut or greater.

APPLICATION:

VISCOLITE-310 is designed to be pumped down hole at 25 gallons per foot of perforation. Before it is pumped it is diluted 50% with fresh water and then displaced at 1.50 the volume of the tubing or greater. This dosage can be increase for longer lasting results.

In this case, treatment is needed for formations above 180 F, meaning the VISCOLITE-310-HT will be used. The VISCOLITE-310 HT has a High temperature additive which prevents damage to the surfactant for up to 45 days.