



AlphaZyme[®] D300 EOR

From Complus Trading North America LLC

Usage Instructions

AlphaZyme D-300 is used as a well stimulation product to improve production by improving the viscosity of the oil. Temperature limit is 300 degrees Celsius. AlphaZyme D-300 can also be used in Water Flood Programs and is offered as AlphaZyme D-300WC.

Product Dilution

These products are to be diluted to a 10% to 20% activity rate and injected into the Well Head at the well. Precise Displacement by volume should be calculated using the Annulus Formula. **Never use this product in the concentrated format.**

Example of Annulus Volume formula injecting down the tubing

If Client pulls the pump and set a packer on the backside, the diluted product should be pumped down the tubing. This is the best strategy on older wells, to protect the casing from high pressure since the tubing pressure is tested regularly.

To calculate the volume of the tubing, use the following formula: diameter x diameter divided by 1029 x length of the pipe.

Example: if the tubing is 2 7/8 " diameter and it is 6500' deep use $2.875 \times 2.875 / 1029 \times 6500 = 52.21$ barrels will fill the tubing. A Barrell is equal to 42 gallons of diluted barrels. In this case, a total of 2192,82 gallons of diluted product are necessary with a total of used concentrated AlphaZyme D-300 product of 219,28 gallons (or 0,85 Metric Tons). One metric ton of AlphaZyme D-300 is equivalent to 258,87 Gallons.



Complus Trading North America LLC
5151 Katy Freeway, Suite 140,
Houston, Texas 77007 U.S.A.

Tel: +1 830.200.5119
e-mail: info@complustrading.com
www.complustrading.com



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On a small well stimulation we generally pump 25 barrels per foot of perforations in vertical wells and displace with the volume of the tubing by 1.5 times. For larger stimulations we will treat with 50 barrels per foot of pers.

Example of Annulus Volume formula injecting down the casing

If the client does not want to remove the pump and use the annulus to push the treatment down in the formation, calculate the casing volume with the same formula and subtract the tubing volume for the casing and that is our displacement rate x 1.5.

When treating down the annulus, always set the pump in the upward position and tighten the stuffing box before beginning the treatment. However normally, per each well, consider a quantity of 1 metric ton of concentrated AlphaZyme D300 to be diluted to 10% with produced water (or saline water or normal water) in a mixing tank, equivalent to 10 metric tons of water and the mix shall be injected in the annulus with a 5000 psi pump.

Soaking period

In order to maximize the duration of stimulation up to the maximum of 36 months, we suggest, at the end of at least one week soaking period, to open only partially the well, to only 30% capacity for 3 days, then to 50% for another 3 days and to 100% after another 6 days. In that way the Enzyme will continue to work for a long time after treatment. (According to experience on previously treated wells, results may vary based on type of formation. Some soak times have been up to 14 days to get maximum output).



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Important Notes

Note: In reviewing well stimulating programs always consider the review of the well's core analysis data to understand each well's Clay content within the formation. If Clay is found in the Formation, then a 2 to 3% KCL (Potassium Chloride) should be used as a dilution with the water volume to prevent most Clays from swelling and inhabiting the oil flows. In cases where high levels of Smectite are found in the well's formation (Volumes Greater than 8%), then use our products are best used in conjunction with PHPA, or displaced with Nitrogen or CO₂, during the stimulation process.

Note: Each product above will change the formation's rock from Oil Wet to Water Wet or are offered in specific products that will change the rock from Oil Wet to Water Wet.



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