



DG-OF

PRODUCT BULLETIN

DG-OF sticks are condensate-dispersible water-soluble sticks that contain surfactants that foam both the condensate and water column in gas-condensate wells.

Product Uses

DG-OF sticks are primarily used to increase gas production by removing condensate and water from gas-condensate wells. The foaming action decreases the hydrostatic back-pressure, which increases gas production, which further enhances the foaming action until the well unloads. Some water must be present to enhance the DG-OF's foaming action in wells with BHT less than 130°

DG-OF sticks are recommended only when over 75% of fluid column is composed of condensate. If the fluid column contains over 25% water it is recommended to use DG-16 or the DG-A only or a combination of both DG-OF and either the DG-16 or the DG-A sticks to be more effective in removing the fluid.

DG-OF can also be used to increase the swabbing efficiency and life of swab cups. The slick coating and foaming action increases efficiency of the swab and extends the life of swab cups. The perforations are often cleaned as a result of the detergent and swabbing action.

Product Advantages

DG-OF sticks are an economical way to remove condensate and water from gas-condensate wells without using expensive well service operations such as swabbing, jetting with coiled tubing, or installing artificial lift and siphon strings.

Treatment

The number of DG-OF sticks to be used is based on the volume of fluid above the perforations. Field tests indicate that the best results were achieved by using a larger initial slug treatment of ½ to 1 percent by weight to fluid above the perforations. A treatment of ½ to 1 percent by weight would require 1.75 to 3.50 lbs of sticks per BBL of fluid.

| DG-16's Sizes | Sticks per bbl (Initial Slug Treatment) |
|---------------|--|
| 1 1/4" x 15"* | 2-4 Sticks per 1 bbl of H ₂ O |

*Other sizes available, please see size chart below

NOTE: *This amount is recommended for an initial slug treatment. In many cases, removing the top few hundred feet of fluid may be sufficient to allow the production of natural gas to blow out the remaining fluid in the well. To determine optimum amount for periodic treatments you may choose to gradually reduce the initial treatment amount until the most economical point is reached. Periodic treatments with DG-OF may be necessary to prevent production decline due to the gradual water build-up. It is much easier to maintain gas production with regular insertion of DG-OF sticks than it is to kick off a dead well. Gas bubbling through water is necessary to create foam. If a well is totally dead, DG-Gas sticks may be used in conjunction with DG-OF sticks to provide agitation energy. Water must be present for DG-Gas sticks to produce gas.*

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DG-OF (CONT.)

Common Procedures

The most common procedure to add sticks to a well is to shut-in the well and drop sticks through a lubricator. Wait 45 seconds until the sticks contact fluid, then slowly return well to normal production. Repeat procedure if or when it becomes necessary. FOR HIGH RATE WELLS (after sticks have come in contact with the top of fluid) flow well at about 25% of pretreatment rate for about 20 minutes or until foam reaches surface the return to normal rate. FOR SHALLOW OR LOW RATE WELLS leave well flowing while dropping sticks if possible.

Product Specifications

The stick will normally dissolve in 30 to 80 minutes depending on temperature, salt content, and relative fluid motion. Melting point of the sticks is 130°. The stick will dissolve in water in wells with BHT below 130° (just at a slower rate). Lab tests indicate that the dissolving rate in moving diesel to be 80 minutes @ 100°, 24 minutes @ 120°, 7 minutes @ 140°, and 2 minutes @ 180°. The dissolving time will decrease if the sticks are broken before dropping or if they break upon impact with the top of the fluid. The specific gravity is 1.08. The falling rate through fresh water is approximately 100 feet per minute. Gas moving up tubing will often change falling characteristics.

Product Packaging

| | | |
|---------------------------|--------|-----------|
| Texas Size (1 5/8" x 18") | 24/Box | 48/Chest |
| Large (1 3/8" x 16") | 36/Box | 72/Chest |
| Medium (1 1/4" x 15") | 36/Box | 72/Chest |
| Small (1" x 15") | 49/Box | 108/Chest |

Sticks can also be purchased by the drum when applicable. Please ask your sales representative if interested.

CAUTION: Avoid contact with eyes or skin. Wash thoroughly with water. Sticks should be stored in a cool dry place. Always remove sticks from plastic bag or cardboard tube before using. Bag or tube can be used as a glove to avoid contact with hands.

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