Oilfield Chemicals

US Industry Study with Forecasts for 2017 & 2022

Study #3065 | November 2013 | $5100 | 302 pages
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INDUSTRY STRUCTURE
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US demand to rise 2.1% annually through 2017

Demand for oilfield chemicals in the US is forecast to rise 2.1 percent annually through 2017 to $10.5 billion. Following rapid growth between 2002 and 2012, chemical volumes will continue to see strong gains, driven by increasing drilling activity, oil and gas production, and use of technologies such as hydraulic fracturing and enhanced oil recovery (EOR). However, growth in value terms will be restrained by lower prices for guar gum, an important oilfield chemical product that saw a price spike in 2012.

Well stimulation to remain dominant application

Hydraulic fracturing has become one of the most widely used and important oilfield technologies in the US, making well stimulation the largest application for oilfield chemicals. Growth in fracturing activity is expected to continue this trend, with both the number of fractured wells and the average volume of fluids per well continuing to increase. Of the chemicals used in fracturing, guar gum has presented unique challenges to the industry due to sharp price increases, which peaked in early 2012. Helping to offset the industry's reliance on this commodity will be the rising use of slickwater fracturing -- which does not use guar -- as well as efforts to find alternative polymers that can match guar's performance. Other chemicals that have benefited from the growth in fracturing include friction reducers, surfactants, gases, and a variety of other products.

Drilling activity is expected to remain elevated through the forecast period, driving demand for chemicals used in both drilling and completion. Demand will be strong for chemicals, such as friction reducers and shale inhibitors, with the ability to increase drilling efficiency and reduce rig time, improve well productivity through reduction of formation damage, and better the environmental profile of formulated products. As the industry has turned to development of unconventional resources, many of the associated formations have required the performance of oil-based drilling fluids. However, as the performance of water-based drilling fluids continues to improve, they will see increasing use even in difficult drilling conditions where oil-based muds have traditionally been the preferred choice. Offshore drilling, which is expected to rebound going forward, will support strong demand for both synthetic drilling fluids and high density completion brines.

Other important oilfield chemical applications -- such as cementing, production, and EOR -- will also see healthy growth. Production of oil and gas in the US is expected to continue to grow, while the mature nature of most US oilfields results in rising water cuts in the production stream.
**Corrosion & Scale Inhibitors**

Demand for corrosion and scale inhibitors in oilfield production applications is expected to increase 4.4 percent annually to $280 million in 2017, with volume reaching 175 million pounds. The main driving growth will be the rising amount of water produced at well sites as fields mature, as mature wells tend to emit more water as part of the production process. Demand will be further aided by a gradual increase in oil and gas production, as well as producers' willingness to invest in corrosion inhibitors to extend well equipment life due to relatively high and rising oil prices.

Corrosion inhibitors are used to protect metal (especially iron) equipment, such as tubular goods, both downhole and at the surface, from the corrosive effects of water and other chemicals such as hydrogen sulfide and carbon dioxide. Corrosion can damage downhole equipment, roughen pipe walls, or cause pipe failures which allow petroleum to leak from the well, eventually necessitating workover. To prevent these issues, corrosion inhibitors can be used either continuously or as needed, depending on the conditions of the well. Corrosion inhibitors can be made from chemicals such as modified natural oils, fatty acids, surfactants, amines, imidazolines, quaternary ammonium chlorides, and others.

Scale is the other major issue commonly occurring in oil and gas production involving an interaction between the produced fluids and metal surfaces. Scale is a crystallized mineral deposit which can accumulate on metal surfaces, narrowing the diameter of production tubing and the ability of formation fluids to flow to the surface. Scale inhibitors are used to control, prevent, or remove this buildup in the production conduits or completion systems. These additives can also be administered continuously during production or used in periodic treatments during production activities.

**Table VI-7**

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**Chart VII-1**

US OILFIELD CHEMICAL MARKET SHARE, 2012 ($9.5 billion)

- Marketers: 52.1%
- Others: 47.9%
GEO Drilling Fluids Incorporated
1431 Union Avenue
Bakersfield, CA 93305
661-325-5919
http://www.geodf.com

Annual Sales: $30 million (estimated)
Employment: 100 (estimated)

Key Products: GEO MUL oil-based invert emulsion systems, GEO MUL oilfield fluids, GEO MUL oilfield fluid additives, and related raw materials used in the formulation of drilling fluids.

GEO Drilling Fluids is a privately held manufacturer and supplier of oil- and water-based fluids and additives for the oil, gas, and geothermal industries. The Company maintains chemical mixing and warehouse facilities in Bakersfield and Woodland, California; and Belfield, North Dakota. In addition, GEO Drilling Fluids’ Industrial Minerals Company subsidiary (Sacramento, California) specializes in the production of clays and minerals for the ceramic industry.

GEO’s products include such oilfield chemicals as drilling fluids, oilfield fluid additives, and related raw materials. Drilling fluids made by the Company include GEO MUL oil-based invert emulsion systems. These products are made using GEO Drilling Fluids’ PETRODRILL LVT 200 low viscosity base oils, which feature low toxicity and high performance properties. GEO MUL drilling fluid systems can be modified using a number of performance additives offered by GEO Drilling Fluids, including MUL THIK bentonite-based organophilic clay viscosifiers and gellants, MUL TREAT dispersants and wetting agents, and MUL I emulsifiers. GEO Drilling Fluids manufactures a broad range of additives that can be used in other types of oilfield fluid systems.

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