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# Oilfield Chemicals

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US Industry Study with Forecasts for **2017 & 2022**

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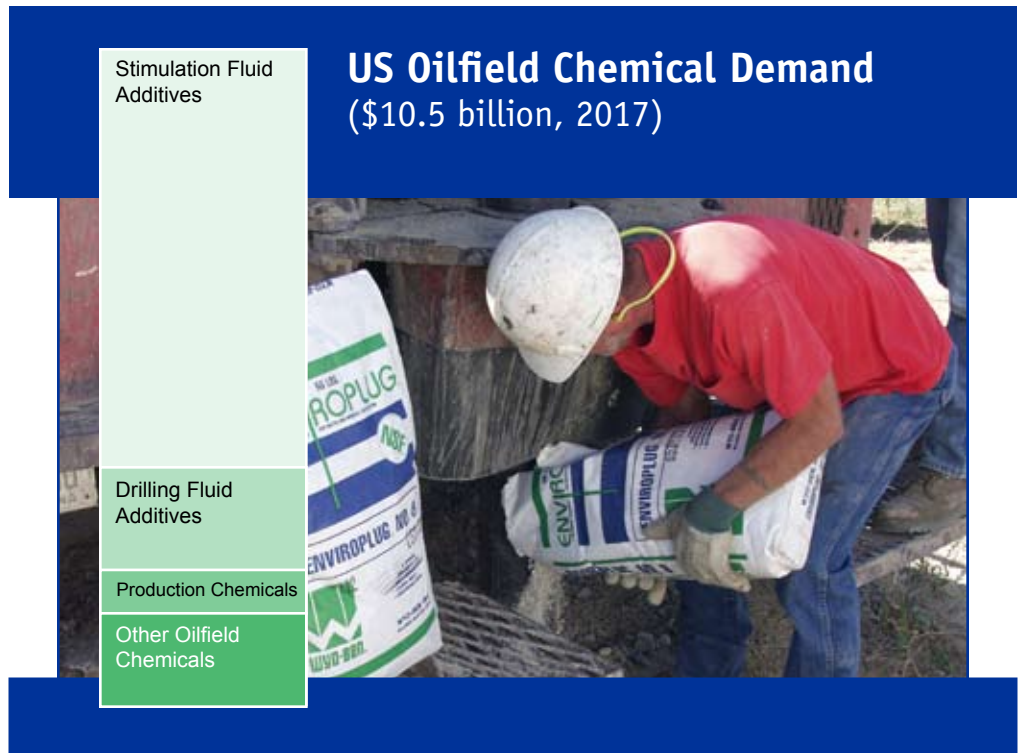
*Strong gains in volume demand will be driven by increasing drilling activity, oil and gas production, and use of technologies such as hydraulic fracturing and enhanced oil recovery (EOR).*

## 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. How-

ever, 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.



## Sample Text, Table & Chart

### OILFIELD CHEMICAL APPLICATIONS

#### Corrosion & Scale Inhibitors

Demand for corrosion and scale inhibitors in oilfield production applications is expected to grow at a rate of approximately 3 percent annually to \$1.2 billion in 2017, with a forecasted increase to \$1.5 billion by 2022. The main driving growth factors are the rising amount of production at wells with declining reserves, the need to emit more production, and the increasing demand for further aid in production. The oil and gas production, wells requiring corrosion inhibitors, as well as production, require corrosion inhibitors to extend well equipment relatively high and rising oil prices.

**SAMPLE  
TEXT**

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 oilfield production involving an interaction between the produced fluids and metal equipment. Scale is a crystallized mineral deposit which can accumulate on metal surfaces, narrowing the diameter of production tubing and reducing 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.

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TABLE VI-7

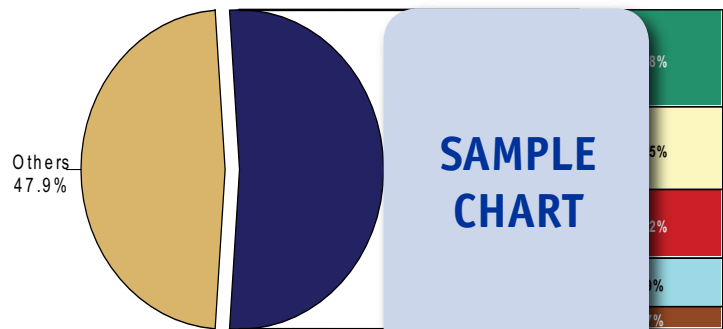
### SPECIALTY CHEMICAL DEMAND IN OILFIELD APPLICATIONS (million dollars)

Item	2002	2007	2012	2017	2022
Oil & Gas Production (quadrillion Btu) x 0.0007	6	7	7	7	7
lb specialty chem/bil Btu oil & gas					
Specialty Chemical Demand (mil lb) \$/lb	0	5	5	5	5
Specialty Chemical Demand					
Corrosion & Scale Inhibitors	0	0	0	0	0
Biocides	0	0	0	0	0
Demulsifiers	5	5	5	5	5
Other Specialty Chemicals	5	5	5	5	5
% specialty	5	5	5	5	5
Oilfield Chemical Demand	1	10	10	10	10

**SAMPLE  
TABLE**

CHART VII-1

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



**SAMPLE  
CHART**

## Sample Profile, Table & Forecast

TABLE IV-6

DRILLING FLUID DEMAND BY TYPE  
(million dollars)

Item	2002	2007	2012	2017	2022
Active Rotary Drilling Rigs mil gal drilling fluid/rig					
Drilling Fluid Demand (mil gal) \$/gal					
Drilling Fluid Demand Oil-Based Drilling Fluids					
Water-Based Drilling Fluids					
Synthetic-Based Drilling Fluids					
% drilling fluids Formulated Fluid Demand	19				

**SAMPLE  
TABLE**

### COMPANY PROFILES

#### GEO Drilling Fluids Incorporated

1431 Union Avenue  
 Bakersfield, CA  
 661-325-5919  
<http://www.geoc>

Annual Sales: \$  
 Employment: 1

Key Products: c and raw materials  
 used in the form

**SAMPLE  
PROFILE**

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

### STUDY COVERAGE

This Freedonia study, **Oilfield Chemicals**, offers historical data (2002, 2007, 2012) plus forecasts for 2017 and 2022 for demand by application and product, as well as for formulated fluids. This study also details technological factors, assesses macroeconomic environment, evaluates company market share and profiles 37 players in the US oilfield chemical industry.



**OTHER STUDIES**

**Shale Oil & Gas: Products & Services**

This study analyzes the US shale oil and gas product and service industry. It presents historical demand data for 2002, 2007 and 2012, and forecasts for 2017 and 2022 by product (e.g., tubular goods, downhole tools, drill bits and reamers, stimulation products, drilling fluids), service (e.g., pressure pumping, drilling, completion and production), region and play (e.g., Haynesville, Marcellus). The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry players.

#3112 .....December 2013 ..... \$5200

**World Well Stimulation Materials**

This study analyzes the world well stimulation material industry. It presents historical demand data for 2002, 2007 and 2012, and forecasts for 2017 and 2022 by type (e.g., proppants, chemicals), country (US, Russia, China, Canada) and world region (Latin America, Europe, Asia/Pacific, Africa/Mideast). The study also considers market environment factors, details industry structure, evaluates company market share, and profiles industry players.

#3080 .....December 2013 ..... \$6300

**Proppants in North America**

North American proppant demand will grow 11.6 percent annually to over 100 billion pounds in 2017. Raw sand will remain the dominant type and will grow the fastest. Ceramic proppants will be limited to areas requiring high performance products. The US will continue as the dominant market while Canada will grow the fastest. This study analyzes the 59.1 billion pound proppant industry in the United States and Canada, with forecasts for 2017 and 2022 by type, region, state and province. The study also evaluates company market share and profiles proppant suppliers.

#3048 ..... August 2013 ..... \$5100

**Corrosion Inhibitors**

US demand for corrosion inhibitors will rise 4.1 percent annually to \$2.5 billion in 2017. The oil and gas industry's continued expansion of horizontal drilling and hydrofracturing well stimulation in shale formations will drive advances in demand. Concrete and cement additives will grow the fastest due to a rebound in construction spending. This study analyzes the \$2 billion US corrosion inhibitors industry, with forecasts for 2017 and 2022 by application, market and product. The study also evaluates company market share and profiles industry competitors.

#2994 ..... March 2013 ..... \$5100

**World Oilfield Chemicals**

World demand for oilfield chemicals is expected to increase 8.9 percent annually to \$28 billion in 2016. The US will remain the largest market based on its many mature wells and rapid growth in horizontal drilling and hydraulic fracturing. Brazil will be the fastest growing market. Drilling fluids and completion and workover fluids will lead gains. This study analyzes the \$18 billion world oilfield chemical industry, with forecasts for 2016 and 2021 by product, world region and for 44 countries. The study also evaluates company market share and profiles industry participants.

#2973 .....December 2012 ..... \$6200

**About The Freedonia Group**

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