



# World Well Stimulation Materials

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Industry Study with Forecasts for **2012 & 2017**

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Study #2458 | February 2009 | \$5700 | 298 pages

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*Advances will be sustained by expanded efforts to maintain productivity in maturing oil and gas fields as well as in areas that have not been traditional outlets for well stimulation materials.*

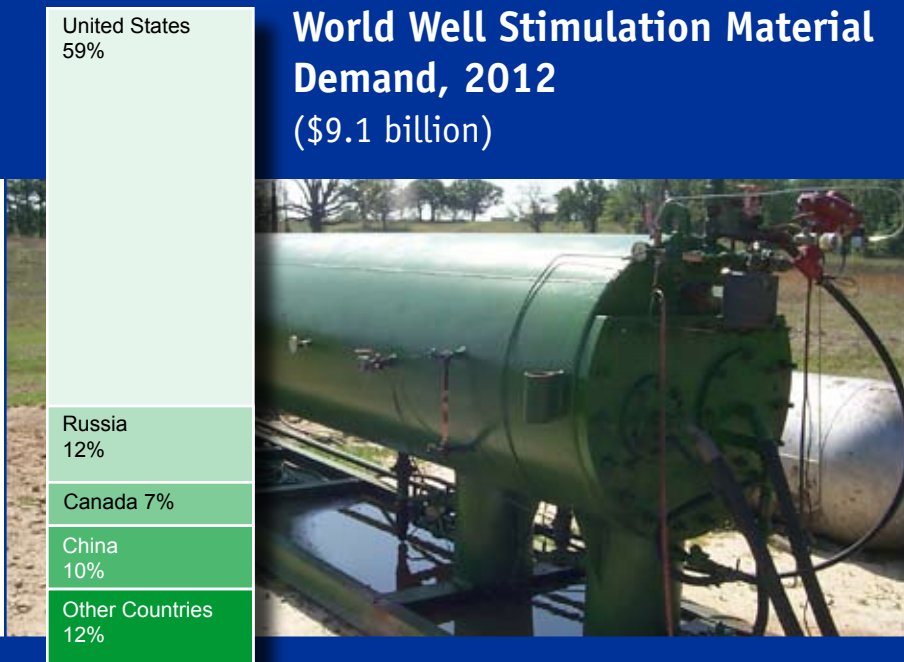
## Global demand to rise at double-digit annual rate

Global demand for well stimulation materials is projected to advance more than 14 percent per year to over \$9 billion in 2012. Growth will slow from the frantic pace of the past few years, which was prompted by record high oil and gas prices. However, advances will be sustained by expanded efforts to maintain productivity in maturing oil and gas fields, both in the large and well-established well stimulation markets, but also in areas that have not been traditional outlets for well stimulation materials, such as Latin America. Producing nations around the world are increasingly turning to hydraulic fracturing and other stimulation techniques to reduce dependence on imports (e.g., the US), increase export opportunities (e.g., Russia, Venezuela, Mexico) or to supply increasing domestic appetites for oil and gas (e.g., China, India and a host of developing countries in Africa, the Middle East and Asia).

## Russia, China to register fastest growth in demand

Overall, the four largest markets -- the United States, Russia, Canada and China -- will continue to account for a large majority of demand. Russia and China are expected to register the fastest growth. A number of common factors contribute to the position of these four countries as significant markets for well stimulation materials. All are significant hydrocarbon producers, and all

## World Well Stimulation Material Demand, 2012 (\$9.1 billion)



have large numbers of oil and gas wells. Perhaps most significantly, all have been longtime producers of oil and gas, and the most productive fields in these countries have long since seen their peak output. As such, oil producers in these four countries and others as well have turned to new and more difficult producing environments, such as deepwater offshore wells in the Gulf of Mexico or off the coasts of China, Brazil or West Africa; deeper wells with greater pressure onshore; coal bed methane projects in the US and Canada; and oil sands in Alberta, Canada. But they have also turned to hydraulic fracturing, acidizing and other stimulation techniques to boost production both in older wells and in new wells at the time of completion.

Although areas with declining production provide key opportunities for well stimulation materials, a substantial share of stimulation activity will be focused on less fully exploited reserves, such as deepwater areas in the Gulf of Mexico, the Caribbean, and coal beds in the Rocky Mountain region. To date, the US and Canada have led in terms of coal bed development, but dozens of countries have the potential for such production. Several other countries offer strong prospects for well stimulation materials used in unconventional gas production via coal bed, shale gas or tight sandstone technologies, including many that are already significant producers of conventional oil and gas.

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**Sample Text,  
 Table & Chart**

**KEY COUNTRIES**

**Russia: Proppants** -- Demand for proppants in Russia is expected to grow at a rate of approximately 10 percent per year through 2012. CARBO Ceramics is the only proppants available in Russia, and its high cost imported ceramics are being replaced by less expensive, higher performance domestic products. The use of fracturing technology is expected to continue through 2012.

The majority of Russian proppant demand is met by ceramic proppants, and future growth in this segment will be aided by the production of CARBO Ceramics' 45,500-metric-tons-per-year facility, which is scheduled to begin production in mid-2007. Historically, CARBO was the only supplier of ceramic proppants to the Russian market via exports from the United States. Exports totaled only a few million dollars until the past few years. However, as Russian demand for ceramic proppants starting in 2005, there has been strong growth, a new local producer -- JSC Borovichi -- commenced operations in 1998. Not long thereafter, FORES entered the proppant market, and by 2007 had become the largest domestic supplier. With the growth of FORES and Borovichi, and the presence of other competitors, CARBO's share of the Russian proppants market declined, in large part because it faced transportation costs and tariffs that domestic producers were able to avoid. Ultimately, this contributed to CARBO's decision to build a plant in Kopeysk, Russia.

Other participants in the Russian market for ceramic proppants include locally based Trekhgorny Ceramic Factory. Imports from Brazil (via Mineração Curimbaba) and from China (primarily via Guizhou LinHai New Material Manufacturing Company and Yixing Orient Petroleum Proppant Company) are also growing in importance. Russia is not a major consumer of sand proppants relative to the overall proppant product mix, but is still a significant market. US-based Badger Mining exports sand proppants to Russia from a plant in Poland. This

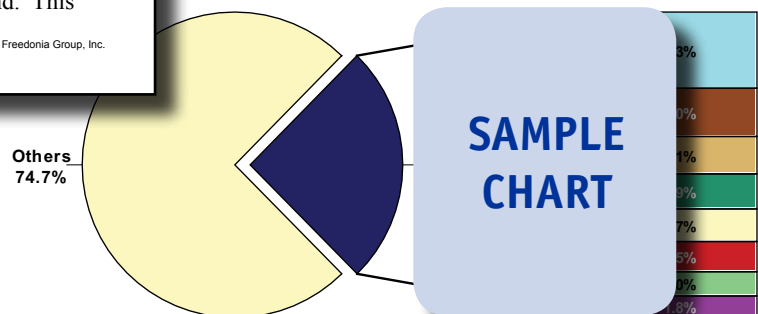
**TABLE VI-9  
 ASIA/PACIFIC\*: WELL STIMULATION MATERIAL  
 DEMAND BY COUNTRY  
 (million dollars)**

Item	1997	2002	2007	2012	2017
Producing Oil Wells (000)	20	20	20	20	20
Australia					
India					
Indonesia					
Kazakhstan					
Other					
000\$ stimulation/well					
Well Stimulation Material Demand					
Indonesia					
Kazakhstan					
India					
Australia					
Other					

\* excludes China

**CHART VII-1**

**WORLDWIDE WELL STIMULATION MATERIAL MARKET SHARE, 2007  
 (\$4.65 billion)**



## Sample Profile, Table & Forecast

**TABLE V-9**

**RUSSIA: WELL STIMULATION MATERIAL DEMAND BY TYPE**  
(million dollars)

Item	1997	2002	2007	2012	2017
Producing Oil Wells (000)	107	107	107	107	107
000\$ stimulation/well					
Well Stimulation Material Demand					
Proppants					
Base Fluid Materials					
Fluid Additives					
Gases & Other					
% Russia					
World Well Stimulation Materials					

**SAMPLE  
TABLE**

**COMPANY PROFILES**

**Enerchem International Incorporated**  
 450, 440 Two Avenue Southwest  
 Calgary, Alberta T2P 5E9  
 Canada  
 403-269-1500  
<http://www.enerchem.com>

Revenue  
 Employr

Key Pro  
 viscosity

workover fluids;

and distributes  
 hydrocar and gas production  
 and processing industries. In addition, the Company is a provider of  
 energy marketing services, fluid transportation and related oilfield ser-  
 vices. Enerchem operates in three segments: Oilfield Services, Energy  
 Marketing and Transportation Services.

The Company participates in the world well stimulation materials  
 industry through the Oilfield Services segment, which reported 2007  
 revenues of US\$48 million. Through this segment, Enerchem produces  
 and markets a variety of hydrocarbon products, including fracturing  
 and drilling fluids, solvents, and other products.

Fracturing fluids from Enerchem comprise FRACSOL and FRAC  
 LITE oil-based products, which are used to stimulate oil production  
 by inducing fractures and fissures in the formation via the application  
 of very high fluid pressure to the face of the formation. Enerchem  
 produces ENVIROSOL stimulation fluid; UNISOL workover fluid; EZ  
 SOL heavy oil viscosity reducer; and WAXSOL and XYSOL solvents

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**SAMPLE  
PROFILE**

“Demand for well stimulation materials in Russia is projected to increase more than 16 percent per year to over \$1 billion. This growth, which is faster than the global average, will contribute to Russia’s increased global market share. Because Russia is one of the two top oil producers and the leading natural gas producer, but operates mainly in older fields that have been producing for a long time, it is something of a natural market for well stimulation materials. Moreover, ...”  
 --Section V, pg. 134



**OTHER STUDIES**

**Industrial Gases**

This study analyzes the US industrial gas industry. It presents historical demand data for 1997, 2002 and 2007, and forecasts for 2012 and 2017 by type (e.g., nitrogen, oxygen, hydrogen, carbon dioxide, argon, helium, acetylene), delivery method and market (e.g., petroleum and natural gas, metal processing, chemical processing, electronics, food and beverage processing, medical). The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry players.

#2427 ..... 03/2009..... \$4700

**World Oilfield Chemicals**

Global demand for oilfield chemicals will grow 5.7% annually through 2012. Gains will be driven by continuing growth in oil and gas production, and high levels of rotary drilling rigs in use and of wells drilled. North America will remain the dominant market while Latin America and the Asia/Pacific region will grow the fastest. This study analyzes the \$15.2 billion world oilfield chemical industry, with forecasts for 2012 and 2017 by type, world region and for 27 countries. It also details market share and profiles industry players.

#2437 ..... 11/2008..... \$5700

**Well Stimulation Materials**

US demand for well stimulation materials will grow 14% annually through 2012. All important product types will register strong growth as US oilfield operators struggle to sustain production levels. Proppants, the largest category, will double in market value. This study analyzes the \$2.8 billion US well stimulation material industry, with forecasts for 2012 and 2017 by product and regional market. It also evaluates market share and profiles industry competitors.

#2358 ..... 06/2008..... \$4600

**Mining Chemicals**

US mining chemicals demand will reach \$2.5 billion in 2011 based on gains in key markets such as coal mining and aggregate quarrying, which will boost demand for blasting agents. Explosives are the most important chemicals used in the mining industry and will provide the best opportunities. This study analyzes the 21 billion pound US mining chemical industry, with forecasts for 2011 and 2016 by product, function, application and market. It also evaluates company market share and profiles major producers.

#2267 ..... 11/2007..... \$4500

**Oilfield Chemicals**

US oilfield chemical demand will rise 4.3% per year through 2011. Gains will be driven by a rise in rig counts, more use of well stimulation and enhanced oil recovery (EOR) methods and more deepwater drilling and production. Best prospects include EOR chemicals, drilling fluids and well stimulation chemicals. This study analyzes the \$6 billion US oilfield chemical industry, with forecasts for 2011 and 2016 for formulated products and their raw materials. It also details market share and profiles major players.

#2253 ..... 10/2007..... \$4500

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