

[CLICK TO VIEW](#)

[Table of Contents 2](#)

[List of Tables & Charts 3](#)

[Study Overview 4](#)

[Sample Text, Table
& Chart 5](#)

[Sample Profile, Table &
Forecast 6](#)

[Order Form & Corporate
Use License 7](#)

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World Well Stimulation Materials

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

Study #3080 | December 2013 | \$6300 | 368 pages

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Table of Contents

EXECUTIVE SUMMARY

MARKET ENVIRONMENT

General	4
World Economic Overview	5
Recent Historical Trends	6
World Economic Outlook	8
World Demographic Outlook	11
World Oil & Gas Outlook	13
World Crude Oil Outlook	16
Reserves & Exploration	17
Production	21
Crude Oil Pricing Patterns	23
World Natural Gas Outlook	26
Reserves & Exploration	26
Production	30
Natural Gas Pricing Patterns	34
Oilfield Services Overview	36
Environmental & Regulatory Issues	38

TECHNOLOGY

General	43
Well Drilling & Completion	44
Horizontal Drilling	45
Multilateral Drilling	47
Coiled Tubing Drilling	47
Well Completion	48
Well Stimulation Technologies	49
Hydraulic Fracturing	50
Multistage Fracturing	53
Nitrogen Fracturing	54
Refracturing	55
Acidizing	56
Types	57
Uses	57
Retardation of Acid Reactions	58
Fracture Acidizing	60
Other Well Stimulation Technologies	61
Well Stimulation Fluids	62
Fracturing Fluids	63
Crosslinked Gels	64
Linear Gels	65
Slickwater	65
Foamed Fracturing Fluids	66
Visco-Elastic Surfactant (VES) Fluids	66
Acidizing Fluids	67
Unconventional Resource Development	68
Shale Formations	69
Tight Oil & Gas	70
Coalbed Methane	71

OVERVIEW

General	73
Proppants	75
Sand	78

Raw Sand	81
Coated Sand	84
Ceramic	86
Bauxite-Based Ceramic	91
Clay-Based Ceramic	92
Other Ceramic	93
Other Proppants	94
Chemicals	96
Fluid Materials	99
Gases	102
Acids	107
Gelling Agents	111
Crosslinking Agents	117
Breakers	119
Friction Reducers	126
All Other Fluid Materials	128
Fluid Additives	128
Corrosion & Scale Inhibitors	131
Biocides	133
Other Additives	135

UNITED STATES

General	140
Oil & Gas Outlook	141
Well Stimulation Materials Demand	145
Proppants	147
Sand Proppants	149
Ceramic Proppants	154
Other Proppants	155
Chemicals	156
Fluid Materials	158
Fluid Additives	161

CANADA

General	164
Oil & Gas Outlook	165
Well Stimulation Materials Demand	168
Proppants	170
Sand Proppants	172
Ceramic & Other Proppants	173
Chemicals	174
Fluid Materials	176
Fluid Additives	177

CHINA

General	180
Oil & Gas Outlook	181
Well Stimulation Materials Demand	185
Proppants	188
Chemicals	190
Fluid Materials	191
Fluid Additives	193

RUSSIA

General	195
Oil & Gas Outlook	196
Well Stimulation Materials Demand	199
Proppants	202

Chemicals	204
Fluid Materials	205
Fluid Additives	207

OTHER REGIONS

General	209
Latin America	210
Europe	221
Asia/Pacific	232
Africa/Mideast	240

INDUSTRY STRUCTURE

General	247
Market Share	251
Industry Restructuring	256
Cooperative Agreements	258
Marketing & Distribution	261
Research & Development	263
Transportation & Logistics	265
Competitive Strategies	266

COMPANY PROFILES

Air Liquide	269
Air Products and Chemicals	270
Akzo Nobel	272
Ashland Incorporated	273
Badger Mining	274
Baker Hughes	276
Cadre Material Products	278
Canyon Services	279
CARBO Ceramics	281
Carmeuse Group	284
Chevron Phillips Chemical	285
China GengSheng Minerals	286
Dorf Ketal Chemicals India	288
Dow Chemical	289
DuPont (EI) de Nemours	290
Ecolab Incorporated	292
Erna Frac Sand	296
Fairmount Minerals	297
Ferus Incorporated	300
flexFrac Proppant Sand Suppliers	301
FMC Corporation	302
FORES LLC	303
FTS International Services	304
Halliburton Company	306
Hebei Ceramic Proppant	309
Hi-Crush Partners	310
Huber (JM) Corporation	311
Imerys SA	313
Jiaozuo FangHua Ceramics	315
JSC Borovichi Refractories	316
Linde Group	317
Messina Incorporated	318
Mineração Curimbaba	320
Momentive Performance Materials	321
PFP Industries	324

(continued on following page)

Table of Contents

COMPANY PROFILES

(continued from previous page)

Pioneer Natural Resources	325
Praxair Incorporated.....	327
Preferred Sands LLC.....	329
Rio Tinto Group	331
Saint-Gobain	332
Schlumberger Limited	334
SCR-Sibelco NV	337
Shaanxi GuangYu Ceramic Proppant.....	339
Sierra Frac Sand LLC	340
Solvay SA	341
Superior Silica Sands LLC.....	342
Texas Silica LLC.....	343
US Silica Holdings Incorporated	344
Xinmi Wanli Industry Development.....	346
Yangquan Roewe Oil Fracturing Proppant	347
Yixing Orient Petroleum Proppant	347
Zhengzhou Yongtai Ceramsite.....	349
Other Companies Mentioned in Study	350-368

List of Tables/Charts

EXECUTIVE SUMMARY

1 Summary Table.....	3
----------------------	---

MARKET ENVIRONMENT

1 World Gross Domestic Product by Region ..	11
2 World Population by Region	13
3 World Oil & Gas Production by Region.....	15
Cht World Oil & Gas Production, 2012	16
4 World Crude Oil Proved Reserves	
by Country, 2012	19
Cht World Crude Oil Proved Reserves, 2012.....	20
Cht World Technically Recoverable	
Shale Oil Reserves, 2012	21
5 World Crude Oil Field Production	
by Region	22
Cht World Crude Oil Field Production, 2012	23
Cht Crude Oil Spot Prices, 2002-2012.....	25
6 World Natural Gas Proved	
Reserves by Country, 2012.....	28
Cht World Natural Gas Proved Reserves, 2012 .	29
Cht World Technically Recoverable	
Shale Gas Reserves, 2012	30
7 World Dry Natural Gas	
Production by Region	33
Cht World Dry Natural Gas Production, 2012...	34
Cht Natural Gas Prices, 2002-2012.....	36
8 World Drilling Activity.....	38

OVERVIEW

1 World Well Stimulation Materials	
Demand by Type & Country	75

2 World Proppant Demand	
by Type & Country.....	78
3 World Sand Proppant Demand	
by Type & Country.....	81
4 World Ceramic Proppant Demand	
by Type & Country.....	90
5 Other Proppant Demand by Country.....	96
6 World Well Stimulation Chemical	
Demand by Type & Country.....	98
7 World Well Stimulation Fluid Material	
Demand by Type & Country	101
8 World Well Stimulation Gases	
Demand by Type & Country	103
9 World Well Stimulation Acids	
Demand by Country	109
10 World Well Stimulation Gelling Agent	
Demand by Country	113
11 World Well Stimulation Crosslinking	
Agent Demand by Country	119
12 World Well Stimulation Breaker	
Demand by Country	122
13 Other Well Stimulation Fluid Material	
Demand by Type & Country	126
14 World Well Stimulation Fluid Additive	
Demand by Type & Country	130
15 World Well Stimulation Corrosion & Scale	
Inhibitor Demand by Country.....	132
16 World Well Stimulation Biocide	
Demand by Country	135
17 Other Well Stimulation Fluid Additive	
Demand by Country	139

UNITED STATES

1 United States: Key Indicators for Well	
Stimulation Materials Demand.....	145
2 United States: Well Stimulation	
Materials Demand by Type	147
3 United States: Proppant	
Demand by Type	149
4 United States: Well Stimulation	
Chemical Demand by Type	158
5 United States: Well Stimulation Fluid	
Material Demand by Type	161
6 United States: Well Stimulation Fluid	
Additive Demand by Type	163

CANADA

1 Canada: Key Indicators for Well	
Stimulation Materials Demand.....	168
2 Canada: Well Stimulation Materials	
Demand by Type	170
3 Canada: Proppant Demand by Type.....	172
4 Canada: Well Stimulation Chemical	
Demand by Type	175
5 Canada: Well Stimulation	
Fluid Materials Demand	177
6 Canada: Well Stimulation	
Fluid Additive Demand.....	179

CHINA

1 China: Key Indicators for Well	
Stimulation Materials Demand.....	185
2 China: Well Stimulation Materials	
Demand by Type	188
3 China: Proppant Demand	190
4 China: Well Stimulation Chemical	
Demand by Type	191
5 China: Well Stimulation Fluid	
Materials Demand	193
6 China: Well Stimulation Fluid	
Additives Demand	194

RUSSIA

1 Russia: Key Indicators for Well	
Stimulation Materials Demand.....	199
2 Russia: Well Stimulation Materials	
Demand by Type	202
3 Russia: Proppant Demand	204
4 Russia: Well Stimulation Chemical	
Demand by Type	205
5 Russia: Well Stimulation Fluid	
Materials Demand	207
6 Russia: Well Stimulation Fluid	
Additives Demand	208

OTHER REGIONS

1 Latin America: Key Indicators for Well	
Stimulation Materials Demand.....	214
2 Latin America: Well Stimulation	
Materials Demand by Type	218
3 Latin America: Well Stimulation	
Materials Demand by Country.....	221
4 Europe: Key Indicators for Well	
Stimulation Materials Demand.....	226
5 Europe: Well Stimulation Materials	
Demand by Type	229
6 Europe: Well Stimulation Materials	
Demand by Country	232
7 Asia/Pacific: Key Indicators for Well	
Stimulation Materials Demand.....	235
8 Asia/Pacific: Well Stimulation	
Materials Demand by Type	237
9 Asia/Pacific: Well Stimulation Materials	
Demand by Country	239
10 Africa/Mideast: Key Indicators for Well	
Stimulation Materials Demand.....	243
11 Africa/Mideast: Well Stimulation	
Materials Demand by Type	246

INDUSTRY STRUCTURE

1 Well Stimulation Materials	
Sales by Company, 2012.....	249
Cht World Well Stimulation Materials	
Market Share, 2012	252
2 Selected Acquisitions & Divestitures.....	257
3 Selected Cooperative Agreements.....	260

Demand will be driven by high oil prices, which spur drilling activity; and by the depth and challenge of many wells, which require greater amounts of proppants and chemicals to complete.

World demand to rise 12% annually through 2017

World demand for well stimulation materials is projected to increase more than 12 percent per year to over 65 million metric tons in 2017, valued at \$23 billion. Hydraulic fracturing and acidizing have both been used for decades to boost production, especially in aging or damaged oil and gas wells. However, in recent years the combination of multi-stage hydraulic fracturing with horizontal drilling technologies has enabled the development of resources previously considered technically or economically unfeasible.

Increased activity in these unconventional production areas has dramatically boosted sales of proppants and the fluids used to deliver them into downhole fractures. These fluids, comprised of gelling agents, friction reducers, specialty additives, and other chemicals, are generally formulated for specific wells. Demand in these and similar regions is driven by high oil prices, which spur drilling activity; and by the depth and challenging geology of these wells, which require greater amounts of proppants and chemicals to complete.

Although oil and/or natural gas are produced in most countries, four countries -- the United States, Canada, China, and Russia -- account for a large majority of well stimulation materials demand. These countries not only drill the most wells but also have large, older oilfields in which stimulation technologies

World Well Stimulation Material Demand, 2017 (65.2 million metric tons)



United States

Canada

Rest of World

have been proven to increase output. Outside the four major markets, acidizing is often the preferred stimulation method, particularly in carbonate formations.

Proppants to retain largest share of demand

Proppants will continue to account for the largest share of demand in volume terms, more than 80 percent in 2017. Uncoated sand accounts for the great majority of proppants used in the US and Canada. In these countries, ceramic proppants are used mainly in wells with higher closure pressures and other challenging environments. In contrast, ceramic proppants are the leading proppant type in the Chinese and

Russian markets. In these countries, well depths and pressure often favor the use of ceramic proppants. Moreover, these countries do not have sufficient supplies of sand with the necessary performance properties to be used in hydraulic fracturing.

Trends in chemical consumption will be influenced by fluid formulation trends. Gelled fluids will continue to account for a large share of the market, which will sustain demand for such products as gelling agents, crosslinkers, and breakers. In the US and Canada, growing use of "slickwater" formulations that have lower overall ingredient loadings will boost demand for friction reducers, biocides, and corrosion inhibitors.

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**Sample Text,
 Table & Chart**

CHINA

China has been investing heavily in oil exploration and development projects in other countries in recent years, in part to reduce its reliance on coal, which continues to account for a large major portion of the country's energy requirements. These initiatives have included investments in onshore fields and deepwater resources offshore. A number of these investments are in politically and economically unstable countries such as Nigeria and Sudan, but they have also included such moves as the acquisition of Nexen (Canada), which was finalized in early 2012. China remains a net importer of oil, with Saudi Arabia, Angola, Iraq, and Oman the leading import sources. In addition to well production, China has attempted to secure oil and gas pipelines from Russia and Kazakhstan. China has gained concessions in Azerbaijan, Canada, Iran, Iraq, Peru, and Venezuela.

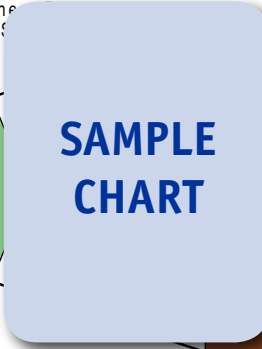
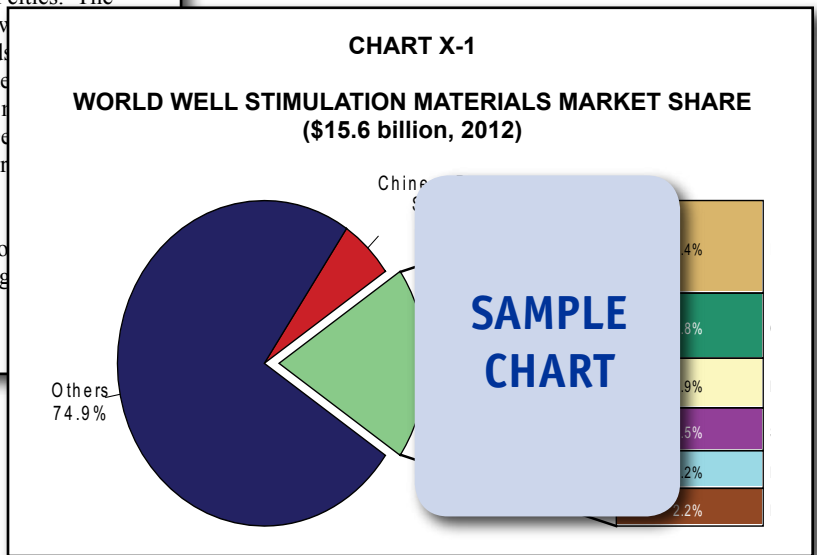
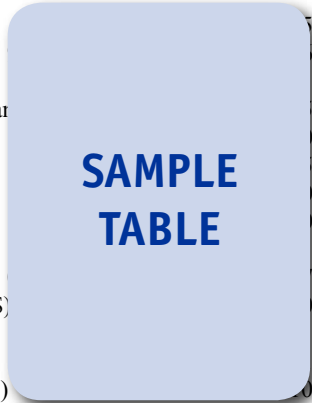
Natural gas production in China has increased by 10 percent annually through 2017 to 100 billion cubic meters (bcm) annually. Natural gas has had a limited role in China's energy mix (1 percent currently), but environmental concerns and increasing demand for electricity have spurred efforts to continue to do so. China has embarked on a major expansion program to enable increased production, some of which involve constructing pipelines from the western and northern producing areas in Xinjiang, Qinghai, and Shanxi to eastern cities. The Twelfth Five-Year Plan includes production objectives that require for natural gas to provide 10 percent of China's energy needs. Production along China's coast is also expected to contribute to production increases. Overall, it is hoped that 20 percent of natural gas production will be from unconventional sources by 2030. Despite production increases, China will remain dependent on imported natural gas in the short term.

In the longer term, unconventional resources such as coalbed methane (CBM) and shale gas production hold particularly strong potential.

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TABLE VII-5
CHINA: WELL STIMULATION FLUID MATERIALS DEMAND
 (thousand metric tons)

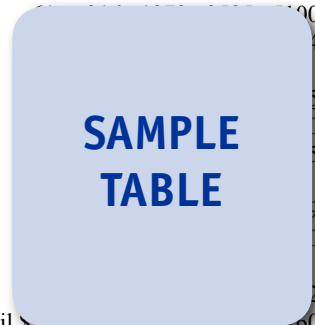
Item	2002	2007	2012	2017	2022
Well Stimulation Chemical Demand					
% fluid materials					
Well Stimulation Fluid Materials Demand					
Gases					
Acids					
Gelling Agents					
Other					
\$/kg					
Well Stimulation Fluid Materials (mil \$)					
% fluid material					
Well Stimulation Chem Demand (mil \$)					



Sample Profile, Table & Forecast

TABLE VII-3
CHINA: PROPPANT DEMAND
(thousand metric tons)

Item	2002	2007	2012	2017	2022
Well Stimulation Material Demand					
% proppants					
Proppant Demand					
Ceramic					
Other					
\$/kg					
Proppant Demand (mil \$)					
% proppants					
Well Stimulation Material Demand (mil \$)					



COMPANY PROFILES

FORES LLC
 21 Frunze Street
 620142 Ekaterinburg
 Russia
 7-343-257-75-
<http://www.fores.ru>

Annual Sales:
 Employment:
 Key Products:

SAMPLE PROFILE

FORES is a privately held manufacturer of ceramic proppants for use in the oil and gas industries. The Company also operates a chemical division to provide consulting services and supply pilot and custom formulated products.

FORES participates in the world well stimulation materials industry through the manufacture of ceramic proppants to boost hydrocarbon production and recovery rates in oil and gas well fracturing applications. FORES is among Russia's leading proppant suppliers. The Company's proppants are available under the FOREPROP, FORES MGLIGHT, and FORERCP brand names. FOREPROP high strength ceramic proppants are produced in mesh sizes of 10/14, 12/18, 16/20, 16/30, and 20/40. These proppants are sold primarily in Russia, although certain mesh sizes are available in North America. The Company's FORES MGLIGHT intermediate strength ceramic proppants are specifically designed for the North American market and encompass mesh sizes of 20/40 and 30/50. FORERCP resin-coated proppants comprise FOREPROP and FORES MGLIGHT products with a resin coating. These products are offered in North America.

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STUDY COVERAGE

This Freedonia study, *World Well Stimulation Materials*, presents historical data (2002, 2007, 2012) plus forecasts for 2017 and 2022 for supply and demand, as well as demand by material and chemical for major regions and countries. The study also details key market environment factors, evaluates company market share and profiles 52 competitors in the world industry.

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OTHER STUDIES

Shale Gas & Tight Oil: Products & Services

This study analyzes the US shale gas and tight oil 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 February 2014 \$5200

Oilfield Chemicals

US demand for oilfield chemicals is forecast to increase 2.1 percent annually through 2017 to \$10.5 billion. EOR products and drilling fluid products will grow the fastest. Gains in value terms will be strong for commodity and specialty chemicals as well as gases, while demand for polymers will decline. This study analyzes the \$9.5 billion US oilfield chemical industry, with forecasts for 2017 and 2022 by application and product. The study also considers market environment and technology factors, evaluates company market share and profiles industry players.

#3065 November 2013 \$5100

World Oil & Gas Pipe

World oil and gas pipe demand will rise 5.3 percent annually to 51.8 million metric tons in 2017 as high oil prices and growing energy demand spur new development. Gas pipe will grow at nearly four times the rate of oil pipe demand. Central and South America and the Asia/Pacific region will grow the fastest. This study analyzes the 40.1 million metric ton world oil and gas pipe industry, with forecasts for 2017 and 2022 by material, diameter, world region, and for 23 countries. The study also evaluates company market share and profiles industry participants.

#3060 October 2013 \$6100

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

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

The Freedonia Group, Inc., is a leading international industry market research company that provides its clients with information and analysis needed to make informed strategic decisions for their businesses. Studies help clients identify business opportunities, develop strategies, make investment decisions and evaluate opportunities and threats. Freedonia research is designed to deliver unbiased views and reliable outlooks to assist clients in making the right decisions. Freedonia capitalizes on the resources of its proprietary in-house research team of experienced economists, professional analysts, industry researchers and editorial groups. Freedonia covers a diverse group of industries throughout the United States, the emerging China market, and other world markets. Industries analyzed by Freedonia include:

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