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Special Report - Fracking Chemicals: Uses and Opportunities

Report Overview

Subjects addressed:

- Shale Gas and Shale Oil
 - North American Overview /Production Trends
 - Wells per state
 - Drilling Trends: Gas vs. Oil
 - Water use and well depth by state
- Top 400 Fracking Chemicals
 - Analysis of consumption and use for shale oil and shale gas, presented separately
 - Frequency of Use
 - Tons per well / typical concentrations
 - Total chemical consumption
 - Fracking trends for both shale oil and shale gas
- Data is supplied for the following functional categories of fracking fluid ingredients:
 - Acidification
 - Iron Control
 - Acid Corrosion Inhibitors
 - Friction Reducers
 - Gelling Agents
 - Crosslinkers
 - Gel Stabilizers/Oxygen Scavengers
 - pH Control Agents (and Buffers)
 - Proppants
 - Proppant Coating / Conductivity Enhancers
 - Gel Breakers
 - Clay Stabilization
 - Surfactants
 - Scale Inhibitors
 - Biocides
 - Common components (methanol, ethanol, NaCl, isopropanol, ethylene glycol, etc.)
- Green Fracking
- Minimal Water Fracking
- Fracking Regulations
- Implications for the Chemical Industry

The market for stimulation and production related chemicals, which supports oil and gas extraction is experiencing a boom, with high growth rates forecast over the next decade. However, the spread of shale oil/shale gas development throughout North America has attracted a degree of environmental opposition, especially concerning the issue of water contamination; in a number of cases, water used in fracking operations has found its way into the groundwater of nearby communities. Faced with significant public pressure, governmental and regulatory bodies at all levels have sought to increase their understanding of the relationship between fracking and water contamination, in some cases enacting legislation governing hydraulic fracturing techniques and

chemical disclosure. Mandatory and voluntary reporting on FracFocus.org is now the norm for most states. The environmental controversy, along with the data available from FracFocus.org and the growth opportunity for the chemical industry, begs the question, "What chemicals are actually used in fracking fluids?"

Nexant has found that there are literally thousands of different chemicals used in fracking fluids – but to the best of our knowledge, very little quantification has been published on the frequency-of-use, the concentration, and the aggregate consumption of each chemical in use. To date, the industry has relied on anecdotal information from a few previously revealed fracking fluid recipes. Now, with this report, for perhaps the first time, Nexant has developed quantitative information on frequency-of-use, median and average concentration, and total chemical consumption of a broad cross-section of actual fracking fluids. With a considerable investment in data-mining, Nexant extracted the fracking fluid consumption information for over 5100 fracked wells as reported by shale gas/shale oil operators to FracFocus.org during 2012 and 2013.

The resulting report, "**Fracking Chemicals: Uses and Opportunities**" addresses the issues associated with the use of fracking chemicals in North America, particularly in the United States and, with outstanding graphics, shows the broad range of recipes used in the acid, pad and proppant stages for slickwater, linear and cross-linked gel fracking fluids. The study ranks the top 400 fracking chemicals and reviews in detail the consumption and use of 30 commonly used fracking chemicals, depicting their past, present and possible future use. It also reviews potential market developments for selected chemicals, and the impact of existing and pending legislation on their end-use. The report also describes existing chemicals that could replace compounds that have attracted public and/or legislative opposition, as well as emerging concepts like "green fracking". Nexant's multiclient report forecasts regional shale oil and shale gas production and analyzes the resultant impact of regulations pertaining to fracking chemicals.

In addition to the database of fracking chemicals, Nexant draws upon its broad understanding of the overall chemical industry and knowledge of the shale oil/shale gas value chain to perform the required analysis. A working understanding of the oilfield chemical industry's characteristics and concerns enables Nexant to provide subscribers with in-depth insights into the impact of shale oil and gas developments on the North American chemical business at a strategic level. As with all of its reports, Nexant utilizes its extensive network of primary and secondary resources to produce unique industry insights.

For information regarding the upcoming "**Fracking Chemicals: Uses and Opportunities**" report, please contact STMC@nexant.com.

NexantThinking™

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