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# Refinery Chemicals

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US Industry Study with Forecasts for **2014 & 2019**

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**The Freedonia Group**

767 Beta Drive

Cleveland, OH • 44143-2326 • USA

Toll Free US Tel: 800.927.5900 or +1 440.684.9600

Fax: +1 440.646.0484

E-mail: [info@freedoniagroup.com](mailto:info@freedoniagroup.com)

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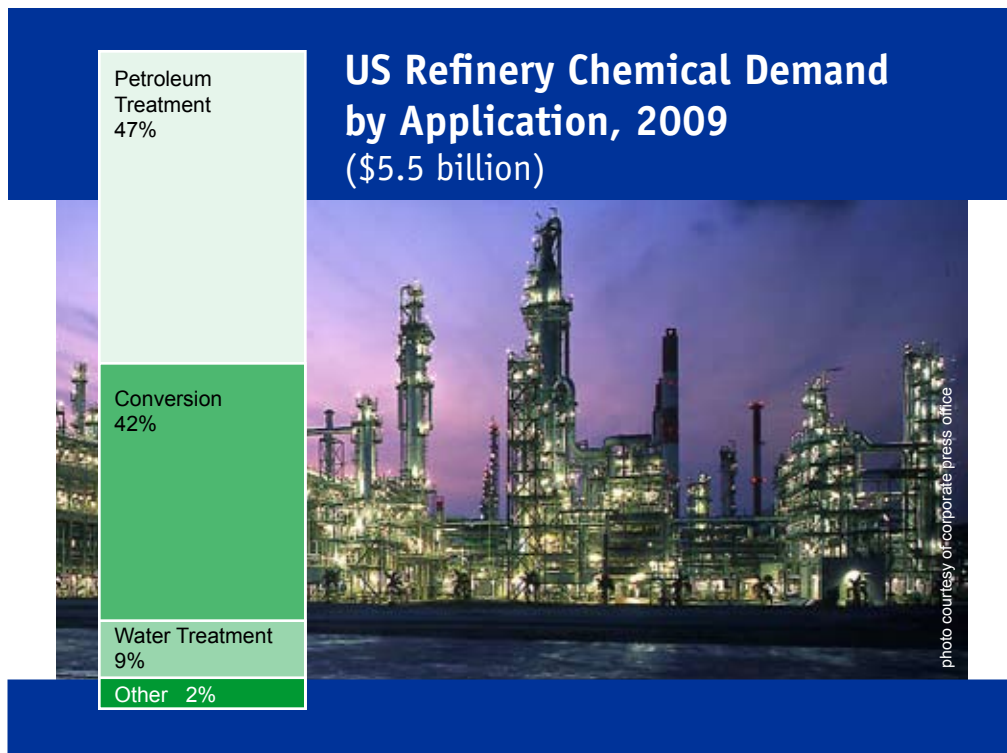
*Higher value products that offer better performance, as well as more stringent chemical treatment to remove more impurities, are factors which will benefit demand for refinery chemicals.*

## US demand to expand 5% annually through 2014

US demand for refinery chemicals is forecast to expand 5.0 percent annually to \$7.1 billion in 2014. The US possesses an advanced refining industry and is among the world's most intensive users of refinery chemicals relative to refinery output. The refinery chemical industry will benefit as the economy eventually recovers from the recession that began in late 2007. Although refined products output is expected to decline through 2014, demand for refinery chemicals will be supported by the use of new, higher-value products that offer enhanced performance. Additionally, refiners will continue to subject their products to higher levels of chemical treatment in order to remove more impurities, thus supporting chemical demand in refinery applications.

## Merchant hydrogen to post above-average gains

Market gains will primarily result from above-average increases in the large merchant hydrogen segment, due to rising use by refiners seeking to supplement their captive hydrogen production. Merchant hydrogen will remain the largest and fastest growing product in the US refinery chemical market. Environmental regulations limiting the sulfur content in fuels will continue to promote the



use of hydrotreating -- the largest application for merchant hydrogen -- as a means of removing sulfur and other contaminants. Hydrocracking represents another growth application for merchant hydrogen, as US refineries continue to expand their hydrocracking capacity in efforts to boost gasoline and diesel fuel yields.

## Metal catalysts to remain largest, fastest growing

Catalysts also account for a significant share of the market and are commonly used in the petroleum refining industry to improve energy efficiency and process productivity.

Metal catalysts will maintain their position as the largest refinery catalyst type. Through 2014, these catalysts are expected to provide the fastest gains in the catalyst segment. Advances will be based on rising use in hydrotreating applications due to efforts to reduce sulfur content in refined products. Zeolites represent another leading type of catalyst used in the refining industry. Primarily employed in catalytic cracking applications, the relative maturity of this technology will prevent more significant gains for zeolite catalysts. Other major refinery chemicals include corrosion inhibitors, pH adjusters and solvents.

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## Sample Text, Table & Chart

### APPLICATIONS

#### Petroleum Treatment Processes

Demand for refinery chemicals used in petroleum treatment processes is expected to increase by 1.5 percent annually to \$1.4 billion in 2014, significant gains for other types of operations. Refiners are investing in their petroleum treatment processes for several reasons. Environmental regulations and tightening in sulfur content are limiting the use of sulfur in refinery operations. This is occurring in the increased use of higher levels of sulfur and other contaminants, which further the need for greater treatment.

Crude oil is a complex mixture consisting mostly of hydrocarbons, although a number of other impurities are also present, such as sulfur, nitrogen, hydrogen sulfide gas, heavy metals and salts. These impurities occur both separately and bonded with other molecules. Many non-hydrogen, non-carbon elements of crude oil are very toxic to their potential for contaminating catalysts, damaging refinery equipment or lowering the quality of finished petroleum products to detrimental levels. To mitigate these problems, refiners treat the petroleum via a number of processes that consume large volumes of refinery chemicals. Treatment processes are also used to separate out hydrocarbons such as naphthenes or aromatics from some product streams.

Of the numerous petroleum treatment processes, hydrotreating represents both the largest and fastest growing consumer of refinery chemicals. Tightening fuel quality standards have made hydrotreating an increasingly important component of the refining process. Desalting is another process a crude oil stream is passed through in a refinery, is a significant consumer of refinery chemicals, although advances in this sector may be subpar based on the relatively small increases expected in

60

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**TABLE III-2**  
**PETROLEUM TREATMENT PROCESSES CHEMICAL DEMAND**  
 (million dollars)

Item	1999	2004	2009	2014	2019
Refinery Output (million barrels)	199	204	209	214	219
\$ chemical/000 bbl output	13	13	13	13	13
Petroleum Treatment Chemical Demand	10	10	10	10	10
By Application:					
Hydrotreating	0	0	0	0	0
Desalting	5	5	5	5	5
Solvent Processes	2	2	2	2	2
Hydrogen Sulfide Recovery	0	0	0	0	0
Other Treatment Processes	3	3	3	3	3
By Type:					
Merchant Hydrogen	0	0	0	0	0
Catalysts	7	7	7	7	7
Solvents	7	7	7	7	7
pH Adjusters	8	8	8	8	8
Other Chemicals	8	8	8	8	8
% petroleum treating	6	6	6	6	6
Refinery Chemical Demand	199	204	209	214	219

**SAMPLE  
TEXT**

**SAMPLE  
TABLE**

**CHART IV-3**

**US REFINERY CATALYST MARKET SHARE, 2009**  
 (\$1.4 billion)

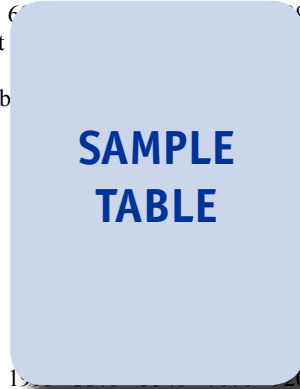


**SAMPLE  
CHART**

## Sample Profile, Table & Forecast

**TABLE IV-8**  
**CORROSION INHIBITOR DEMAND IN REFINING**  
 (million dollars)

Item	1999	2004	2009	2014	2019
Refinery Output (million barrels)	6	6	6	6	6
lb corrosion inhibitor/000 bbl output	3	3	3	3	3
Corrosion Inhibitor Demand (million lb)	0	0	0	0	0
\$/lb	8	8	8	8	8
Corrosion Inhibitor Demand	0	0	0	0	0
Water Treatment	5	5	5	5	5
Petroleum Treatment	5	5	5	5	5
Conversion Applications	0	0	0	0	0
Other Applications	0	0	0	0	0
% corrosion inhibitors	2	2	2	2	2
Refinery Chemical Demand	1	1	1	1	1



**COMPANY PROFILES**

**Intercat Incorporated**  
 Ramshorn Executive Center  
 2399 Highway 34, Suite C-1  
 Manasquan, NJ 08736  
 732-223-4644  
<http://www.intercatinc.com>

Annual Sales  
 Employment  
 Key Products

**SAMPLE PROFILE**

Intercat is a leading provider of fluid catalytic cracking (FCC) additives to the refining industry. The private company provides technical support.

The Company is involved in the US refinery chemical industry through the production and sale of FCC additives. According to Intercat, it serves virtually every major oil refining company in the US, as well as in Mexico, Canada, Japan, India, Europe and Australia, and has approximately 70 percent of the additive market.

Intercat's FCC additives include types for sulfur oxide and nitrogen oxide reduction, octane and catalyst enhancement, and other refinery applications. For sulfur oxide reduction applications, the Company makes such products as SOXGETTER additives, which are designed to decrease the cost of removing sulfur oxide from FCC flue gas. SOXGETTER sulfur oxide emission control agents include standard and SUPER SOXGETTER additives. Related offerings from Intercat include ULTRA LO-SOX additives, which feature high sulfur oxide sorption capacity with rapid sulfur oxide pickup rates. The Company's nitrogen oxide reduction products include NOXGETTER additives,

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"Demand for corrosion inhibitors in refinery applications is forecast to expand 3.6 percent annually to \$460 million in 2014, with volume reaching 320 million pounds. The large water treatment segment will account for the majority of demand growth, as the rising use of internal water recycling is causing refiners to increase the volume of corrosion inhibitors used in this market segment. Additionally, an increasing number of refiners are ..."  
 --Section IV, pg. 126-7



**OTHER STUDIES**

**World Oilfield Chemicals**

Global oilfield chemical demand will rise 8.6% yearly through 2014, driven by a recovery in the oil and gas industry and higher oil and gas prices. North America will remain the dominant market while the Central and South American region grows the fastest. Stimulation and enhanced oil recovery chemicals will lead gains. This study analyzes the \$13.7 billion world oilfield chemical industry, with forecasts for 2014 and 2019 by product, world region and for 26 countries. It also evaluates market share and profiles industry players.

#2702 .....December 2010 ..... \$5900

**World Industrial Gases**

Global demand for industrial gases will increase 8% yearly to 2014. The Asia/Pacific region will remain the fastest growing based on its ever expanding manufacturing base. The Africa/Mideast region will also exceed average growth rates, driven in part by its large oil reserves and refining industry. This study analyzes the \$35.7 billion world industrial gas industry, with forecasts for 2014 and 2019 by market, type, world region and for 27 countries. It also evaluates company market share and profiles industry participants.

#2659 ..... August 2010 ..... \$5900

**Well Stimulation Materials**

US demand for oil and gas well stimulation materials is projected to increase 14% annually through 2014. Gains will be buoyed by renewed efforts to reduce dependence on foreign energy sources. The largest segment, proppants, will also be one of the fastest growing, along with gases and other materials. This study analyzes the \$3.8 billion US well stimulation material industry, with forecasts for 2014 and 2019 by product and US regional market. It also evaluates company market share and profiles industry players.

#2636 ..... May 2010 ..... \$4900

**World Hydrogen**

Global demand for hydrogen is forecast to expand 3.4% yearly through 2013. Gains will be driven in part by the use of more hydrogen in refining low sulfur fuels. The Asia/Pacific region will surpass North America as the global leader in hydrogen consumption by 2013. This study analyzes the \$39 billion world hydrogen industry, with forecasts for 2013 and 2018 by market, world region and for 17 countries. It also discusses the "hydrogen economy," evaluates company market share and profiles industry participants.

#2605 ..... February 2010 ..... \$5300

**World Refinery Chemicals**

Global oil refinery chemical demand will rise 3.5% yearly through 2013, driven by tightening environmental laws and efforts to boost gasoline and diesel fuel yields. North America will remain the dominant regional market, while the Asia/Pacific and Africa/Mideast regions grow the fastest. This study analyzes the 15.4 million metric ton world refinery chemical industry, with forecasts for 2013 and 2018 by application, product, world region and for 19 countries. It also evaluates company market share and profiles industry players.

#2570 .....December 2009 ..... \$5700

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