US demand gains for biocides through 2020 will benefit from economic growth and rising construction spending that affects large markets for biocides, such as wood preservation and paint and coatings. Copper-based biocides used in wood treatment will see the most rapid gains, benefiting not only from increasing construction but also from changing usage guidelines that specify greater preservative concentrations in some applications.

Energy industry to recover slightly
The energy market was a significant contributor to biocide demand gains over the past decade, but declined in 2015 due to a historic collapse in oil prices that reduced oil and gas drilling activity. The industry remains in a state of limited recovery, and while biocide demand is expected to increase going forward, growth is forecast to be slower than it was between 2005 and 2014.

Biocide industry heavily regulated
The biocide industry is heavily regulated, as biocides are often associated with significant environmental concerns or toxicity to humans. As a result, environmental and health regulations will continue to impact both the overall level of demand and the biocide product mix. Older, more harmful products have steadily been removed from the market, and this trend will continue. The most significant regulatory action with immediate impact on the biocides market is the Food and Drug Administration’s (FDA) ruling in September 2016 banning triclosan and other biocides from hand and body washes.

Consumers prefer products with “clean labels”
Within some markets -- such as food and beverages and cosmetics and toiletries -- consumer preferences for “clean label” products (without artificial preservatives and other additives) will continue to drive shifts in biocide usage. This will occur even in the absence of new government regulations. For example, major producers and retailers, such as Johnson & Johnson and Walmart, chose to eliminate biocides like triclosan from their product offerings well before the FDA’s recent move to restrict them.

Study coverage
This Freedonia study analyzes the $3.4 billion US biocides market. It presents historical demand data (2005, 2010, and 2015) and forecasts (2020 and 2025) by product (halogen compounds, metal-based compounds, phenolic compounds, nitrogen compounds, organic acids, organo-sulfurs, and glutaraldehyde), application (preservative and additive, water treatment, and processing), and market (industrial, consumer and commercial, and energy). The study also evaluates company market share for industry competitors including Dow Chemical, Ecolab, LANXESS, Lonza Group, and OxyChem (Occidental Petroleum).
Biocides Market in the US
Industry Study with forecasts for 2020 & 2025

December 2016

$5500

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Paint & Coatings

Paint and coatings accounted for 14 percent of industrial biocide demand in 2015. Biocides are largely used as preservatives in paint and coatings, serving two main functions. They provide in-can preservation, preventing the growth of microorganisms like algae in the paint mix while it is in its container, and dry-film preservation, impeding fungal development on painted surfaces after the paint dries and the finished film is formed.

Biocides are also used in the processing of paint and coatings at the manufacturing facilities and in wastewater treatment in paint and coatings production. More recently, biocides have been added to impart antimicrobial effects to the applied surface, inhibiting dangerous bacterial species in settings requiring high levels of sterility, like hospitals and nursing homes.

Solvent-based paint and coatings usually require little or no “in-can” biocide loading because the solvents serve as preservatives. However, biocides are required in the waterborne formulations that occupy the majority of paint and coating demand. Although the shift to water-based paints has been relatively stagnant in recent years, a number of factors contribute to the in-can biocide demand. Maturity in the large manufacturing and architectural paints market has slowed transition to water-based coatings. The fastest growth for aqueous formulations is expected in the maintenance and specialty coatings segments, which have historically been less popular than solvent-based formulations as a result of high performance requirements in this sector.

The paint and coatings market is affected by such macroeconomic variables as construction expenditures and durable goods manufacturing shipments. Other factors that influence biocide demand in this sector include competition from alternatives like powder and radiation curable coatings in the manufacturing and maintenance and specialty markets.

### Table III-17

<table>
<thead>
<tr>
<th>Item</th>
<th>2005</th>
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<th>2020</th>
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<td>Nondurable Goods Shpts</td>
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<td></td>
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<td>(bil 2009$)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>lb glutaraldehyde/mil $ nondurables</td>
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<td>Glutaraldehyde Biocide Demand (mil lb)</td>
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<td>59.5</td>
<td>69.1</td>
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<td>$/lb</td>
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<td>Glutaraldehyde Biocide Demand</td>
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<td>115.0</td>
<td>170.0</td>
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<td>Energy</td>
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<td>Cleaning Products</td>
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<td>13.0</td>
<td>19.0</td>
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<td>Cosmetics &amp; Toiletries</td>
<td>5.0</td>
<td>7.0</td>
<td>10.0</td>
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<td>Other Markets</td>
<td>7.0</td>
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<td>% glutaraldehyde</td>
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<td>4.1</td>
<td>4.9</td>
<td>5.1</td>
<td>6.0</td>
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<td>Total Biocide Demand</td>
<td>231.0</td>
<td>283.0</td>
<td>344.0</td>
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Source: The Freedonia Group

### Table V-10

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<th>Item</th>
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<td>Paint &amp; Coatings Shpts (mil gals)</td>
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<tr>
<td>$ biocides/gal paint</td>
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<td>Paints &amp; Coatings Biocide Demand</td>
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<td>Organosulfurs</td>
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<td>Halogen Compounds</td>
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<td>Metal-Based Compounds</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% paint &amp; coatings</td>
<td></td>
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<td>Industrial Biocide Demand</td>
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Source: The Freedonia Group

This study can help you:

- Determine your market & sales potential
- Learn more about industry competitors
- Assess new products & technologies
- Identify firms to merge with or acquire
- Complement your research & planning
- Gather data for presentations
- Confirm your own internal data
- Make better business decisions
Biocides Market in the US
Industry Study with Forecasts for 2020 & 2025

Study #3457
December 2016
$5500

Related Studies

**Natural Flavors & Fragrances**
US demand for natural flavors and fragrances is projected to grow 4.0 percent per year, reaching $2.7 billion in 2020. Essential oils and natural extracts will remain the largest natural flavor and fragrance segment, while the food market will still be the largest consumer of natural flavor and fragrance. This study reviews the $2.2 billion US market for natural flavors and fragrances, offering forecasts for 2020 and 2025 by market and product. The study also assesses key market environment factors, examines the industry structure and evaluates company market share.

#3476............. October 2016 ............... $5200

**World Paint & Coatings**
World demand for paint and coatings is projected to increase 3.7 percent per year to 54.7 million metric tons in 2020. The best growth opportunities will occur in India, where paint use will be spurred by rapidly expanding investment to build and update homes, businesses and industrial facilities. The study details the 45.5 million metric ton paint and coatings market, giving forecasts for 2020 and 2025 for supply and demand, plus demand by market and formulation, in 6 regions and 23 countries. The study also evaluates company market share and profiles global players.

#3418............... June 2016 ................ $6200

**Oilfield Chemicals**
US demand for oilfield chemicals will rise 5.8 percent annually to $10.3 billion in 2019. Stimulation chemicals and drilling fluid additives will remain the largest and fastest growing types, but will slow considerably from the rapid pace of the 2009-2014 period. Key trends include a shift toward slickwater fracturing fluids and high-performance drilling muds. This study analyzes the $7.8 billion US oilfield chemical industry, with forecasts for 2019 and 2024 by type, application and material. The study also evaluates company market share and profiles industry players.

#3352.............. November 2015 ........... $5300

**Water Treatment Chemicals**
Demand for water treatment chemicals in the US is forecast to rise 3.2 percent per year to $7.5 billion in 2019, with volume reaching 15.5 billion pounds. Foam control agents and coagulants and flocculants will be the fastest growing water treatment chemicals. Energy and manufacturing will be the fastest growing markets. This study analyzes the $6.4 billion US water treatment chemical industry, with forecasts for 2019 and 2024 by product, application and market. The study also evaluates company market share and profiles industry players.

#3322.............. July 2015 ............... $5300

Freedonia’s methods

- Establishing consistent economic & market forecasts
- Using input/output ratios, flow charts & other economic methods to quantify data
- Employing in-house analysts who meet stringent quality standards
- Interviewing key industry participants, experts & end users
- Researching a proprietary database that includes trade publications, government reports & corporate literature

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The Freedonia Group 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 and other world markets. Industries analyzed by Freedonia include:

- Automotive & Transport
- Chemicals
- Construction & Building Products
- Consumer Goods
- Energy & Petroleum
- Industrial Components
- Healthcare & Life Sciences
- Machinery & Equipment
- Metals, Minerals & Glass
- Packaging
- Plastics & Other Polymers
- Security
- Services
- Textiles & Nonwovens
- Water Treatment

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