Over the past several years, advances in reagents and related substances have increased the quality and performance of IVD packaging configurations. This trend is aiding the use of higher value-added closures, containers, and packaging accessories. Nonetheless, the relative cost of packaging to IVD product shipments is expected to decrease gradually through 2025. This slight, but steady drop will reflect efficiency improvements achieved by producers in the design and selection of packaging systems.

**Blood collection tubes to become top-selling IVD group**

Culture and media plates and bottles will post the fastest revenue growth among primary IVD containers through 2020 and beyond based on expanding uses in cancer testing and the detection of complex infectious diseases. Blood collection tubes will become the top-selling group of IVD containers by 2025, reflecting their adaptability to virtually all types of IVD procedures and end-user preferences for higher value-added types with enhanced seals and premium additives.

Over the long term, reagent and solution bottles will continue to dominate the packaging of consumables for clinical chemistry and immunoassay procedures. On the downside, these containers will generate below average revenue growth as advances in technology reduce the volume of reagents required for many patient tests.

**Screw-threaded remain the closure of choice**

Due to ease of opening and the increasing availability of tight seal varieties, screw-threaded designs will remain the closure of choice for reagent and solution bottles, blood collection tubes, culture and media bottles, sample and transport tubes, and tubular vials. Straight plug stoppers will be incorporated in an expanding percentage of IVD containers based on strong moisture-, oxygen-, and hydrocarbon-resistant properties.

**Boxes, cartons & trays to exhibit above average growth**

Availability of point-of-care test kits will generate above average growth for folding paperboard boxes and cartons and trays. In contrast, the overall market for IVD microplates will expand at a decelerating pace as a number of immunoassays performed in clinical and hospital laboratories are replaced by point-of-care tests and professional molecular diagnostic procedures. Security labels, package inserts, expanded content and intelligent components will generate the most rapid sales advances among other IVD packaging products.

**Study coverage**

This study analyzes the US IVD test packaging market. It provides historical data (2005, 2010 and 2015) plus forecasts (2020 and 2025) by product (primary containers, IVD packaging accessories) and application. In addition, the study assesses key market environment factors, analyzes the industry structure, evaluates company market share and profiles 25 US industry participants, including Becton Dickinson, Gerresheimer, Thermo Fisher Scientific, Duran Group and Corning.
In Vitro Diagnostic (IVD) Test Packaging
US Industry Study with forecasts for 2020 & 2025

Study #3421
June 2016
$5300

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IVD PACKAGING PRODUCTS

Reagent & Solution Bottles

Demand for reagent and solution bottles is projected to increase 2.3 percent annually to $710 million in 2020, representing over 5.1 billion units. Included in this product group are borosilicate glass and polyethylene terephthalate (PET) containers ranging from 1 to 30 milliliters in capacity. Both types are available in clear and amber finishes, the latter being indicated for light sensitive preparations. Boston rounds and French squares comprise the most widely produced container styles. Reagent and solution bottles have been adapted to several neck structures, including varieties with an internal rubber or elastomeric stopper connected to an external screw-threaded, septa, crimp, plug cap, or aluminum seal closure.

Compared to other primary IVD containers, reagent and solution bottles will see below average revenue growth. The increasing penetration of lower cost plastic containers into clinical chemistry and immunoassay applications will underlie this trend. Plastic reagent and solution bottles will build up demand based on shatterproof advantages over glass configurations, improving barrier properties, and adaptability to radiation sterilization processing. Nonetheless, glass bottles will continue to lead unit and revenue demand in this IVD packaging group over the long term, reflecting their well-established properties of biocompatibility, chemical inertness, low leaching, a strong gas barrier, and a wide temperature service range.

Corning, Duran Group, Gerresheimer, and Thermo Fisher Scientific are among the leading suppliers of IVD reagent and solution bottles for the US market. For the packaging of liquid reagents, buffering solutions, standards, and controls, Corning makes the PYREX line of tempered glass containers and GOSSELIN line of polypropylene plastic containers. Duran Group produces borosilicate glass reagent and solution bottles.

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

For complete details on any study visit www.freedoniagroup.com

TABLE III-6

REAGENT & SOLUTION BOTTLE DEMAND

<table>
<thead>
<tr>
<th>Item</th>
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<td>(mil units)</td>
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<td>Glass Bottles</td>
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<tr>
<td>Plastic Bottles</td>
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<tr>
<td>cents/unit</td>
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<tr>
<td>Glass Bottles</td>
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<td>Plastic Bottles</td>
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<td>Reagent &amp; Solution Bottle Demand</td>
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<td>(mil $)</td>
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<td>Glass Bottles</td>
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<td>Plastic Bottles</td>
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<td>% reagent &amp; solution bottles</td>
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<td>Primary IVD Container Demand</td>
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</tbody>
</table>

Source: The Freedonia Group

TABLE IV-3

IMMUNOASSAY PACKAGING DEMAND BY TYPE (million dollars)

<table>
<thead>
<tr>
<th>Item</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
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<tr>
<td>$ pkg/000$ shipments</td>
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<tr>
<td>Immunoassay Packaging</td>
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<tr>
<td>Primary Containers</td>
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<tr>
<td>Reagent &amp; Solution Bottles</td>
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<tr>
<td>Blood Collection Tubes</td>
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<tr>
<td>Sample &amp; Transport Tubes</td>
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<tr>
<td>Tubular Vials</td>
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<tr>
<td>Other Primary Containers</td>
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<tr>
<td>Packaging Accessories</td>
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<tr>
<td>% immunoassay</td>
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<td>IVD Packaging Applications</td>
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</table>

Source: The Freedonia Group
Related Studies

Caps & Closures
Demand for caps and closures in the US is forecast to grow 4.2 percent per year to $11.8 billion in 2020. Value gains will be spurred by the rising use of high value dispensing and child resistant closures, while unit gains will be driven by the adoption of smaller bottles in several key beverage markets. This study examines the $9.7 billion US market for caps and closures, presenting forecasts for 2020 and 2025 by product and market. In addition, the study analyzes the industry structure, evaluates company market share and profiles participants in the US industry.

Pouches
Demand for pouches in the US will grow 4.4 percent annually through 2020 to $10.1 billion. Growth will be driven by the introduction of pouch packaging into new markets and the integration of high value features, such as resealable closures and spouts, in more mature markets. Stand-up pouches will remain the fastest growing type. This study analyzes the $8.2 billion US pouch market, with forecasts for 2020 and 2025 by product type, feature, market, and production method. The study also evaluates company market share and profiles industry players.

World Corrugated Boxes
World demand for corrugated boxes is expected to increase 3.7 percent annually through 2019, to 260 billion square meters. Gains will be driven by strong growth in e-commerce and a sustainability advantage over plastic containers. The Asia/Pacific region will account for the largest share of net growth. This study analyzes the 217 billion square meter world corrugated box industry, with forecasts for 2019 and 2024 by raw material and market for six world regions and 27 major countries. The study also evaluates company market share and profiles industry players.

Labels
US label demand will rise 3.8 percent annually to $19.7 billion in 2019. In-mold, stretch sleeve and heat-shrink labels will grow the fastest. Digital printing will continue to displace traditional label printing methods. Primary packaging will remain the largest function, while secondary labeling and mailing/shipping labels will pace gains. This study analyzes the $16.3 billion US label industry, with forecasts for 2019 and 2024 by material, application method, printing technology, and function. The study also evaluates company market share and profiles industry players.

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

About The Freedonia Group
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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Contact Freedonia
1.800.927.5900 (US & Canada)
+1 440.684.9600 (Int’l)
email: info@freedoniagroup.com
website: freedoniagroup.com