

Single-Use Bioprocessing Probes and Sensors Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The single-use bioprocessing probes and sensors market is projected to register a CAGR of 13% during the forecast period.

COVID-19 had significantly benefited the market in terms of adoption and revenue growth. The pandemic has accelerated the application of single-use solutions, including sensors, to meet the technology demand for therapeutics and vaccine manufacturing. Increasing collaboration between technology suppliers and biomanufacturers to boost vaccine manufacturing using single-use technology was a testament to the profound impact of COVID-19 on the market. For example, in September 2020, Serum Institute of India Pvt. Ltd collaborated with ABEC, a global provider of integrated solutions for biopharmaceutical manufacturing, for single-use COVID-19 vaccine manufacturing. This involves the use of disposables, including single-use sensors, for the biomanufacturing of vaccines against COVID-19.

Furthermore, the article published in Genetic Engineering and Biotechnology News in 2022 stated that, besides the availability of COVID-19 vaccines, another factor influencing the increased use of single-use technology was the emergence of shortages. Commodities such as high-purity polymers were in short supply after the pandemic. Since then, the single-use sector has been working to increase capacity. However, in the post-pandemic scenario, due to the high demand for advancement in the biotechnology field, the area of single-use technology is predicted to have the biggest worldwide share. Hence, considering the above-mentioned factors, COVID-19 significantly impacted the single-use bioprocessing probes and sensors market.

Single-use technologies have played an important role in reshaping the biomanufacturing/bioprocessing industry of their high commercial cost and time-saving advantages. With the advent of disposables, single-use bioreactors have supplanted a major portion of conventional solutions in the bioprocessing industry, leading to the high demand for single-use sensors. Commercial advantages over stainless steel bioprocessing products and rising investment for single-use bioprocessing facility expansion are

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driving factors for the market growth. For instance, according to an article published in 2022 by European Pharmaceutical Manufacturer, the urge to use single-use technologies was driven by a desire to save capital expenditure in facilities and equipment while increasing flexibility to assure clinical timeliness. When the economic advantages were calculated using speed-to-market characteristics, the significant expenses required for stainless steel facilities were eliminated. This resulted in the deployment of single-use methods for clinical production. Additionally, single-use enables process portability from one plant to another with minimal or no adaptation.

Furthermore, disposables enable manufacturers to purchase more capacity with a limited start-up budget. These factors have spurred the adoption of single-use sensors among biomanufacturers. Furthermore, the therapy developers are making significant investments in expanding their single-use facility.

Key Highlights

In February 2022, Thermo Fisher Scientific announced an investment of USD 40 million for expanding a single-use technology manufacturing facility in Millersburg, Pennsylvania, United States.

Moreover, in September 2021, Thermo Fisher Scientific Inc. announced its plans to establish a manufacturing facility to accelerate the production of single-use solutions. The facility would be established as one of the world's largest single-use technology manufacturers.

In March 2021, Mettler Toledo acquired PendoTECH, one of the major suppliers of single-use sensors, to enhance its market presence in the single-use bioprocess probes and sensors market. This integration of both companies aimed at improving customers' experience through comprehensive sensor offerings available for the bioprocessing industry.

These above-mentioned factors are anticipated to drive market growth during the forecast period. However, environmental and technical challenges are likely to restrain the market growth.

Single Use Bioprocessing Probes & Sensors Market Trends

The pH Sensor Segment is Expected to Account for the Major Share During the Forecast Period

The pH sensor segment is expected to account for a significant share during the forecast period owing to the highest penetration of the product in terms of usage and availability. The development of disposable pH sensors that combines the reliability and measurement capabilities of conventional sensors along with the ease of use as an integral part of single-use containers is driving the segment's growth.

Furthermore, the presence of competitors, mergers, acquisitions, and collaborations are likely to increase market growth as the pH sensor segment is expected to account for a significant share during the forecast period owing to the highest penetration of products in terms of usage and availability. The development of disposable pH sensors that combines the reliability and measurement capabilities of conventional sensors along with the ease of use as an integral part of single-use containers is driving the segment's growth.

Furthermore, the presence of competitors, mergers, acquisitions, and collaborations are likely to increase market growth as these factors can boost product availability and competition. For instance, in March 2021, Mettler-Toledo International Inc. acquired PendoTECH, an independent supplier of single-use technology, including pH sensors. This acquisition was likely to expand the client base for both companies, thereby driving their business revenues. Such ongoing activities are expected to accelerate segment growth significantly. Despite a high number of disposables pH sensors, this segment continues to witness demand for sensor innovation among biopharmaceutical manufacturers. As a result, market players are undertaking various market measures to address the industry's needs. For instance, in April 2022, ANB sensors launched a breakthrough pH technology for water quality

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monitoring. ANB sensors' breakthrough calibration-free pH sensors, designed to "make pH easy", are cost-effective, robust, and low maintenance. They provide accurate real-time monitoring, link with data platforms and networks, integrate with multi-parameter units, or stand-alone. Moreover, in August 2021, an article was published by BioProcess International. The article discussed the design and performance of a new single-use pH sensor with long shelf life and high stability. The technology is deployed for the launch of Emerson's Rosemount 550pH single-use sensor. Such research articles are anticipated to drive developments in this segment.

Furthermore, market players are engaged in the development of systems that advance and compress unit operations, for example, smart consumables with integrated sensors for pH, dissolved oxygen (DO), and other parameters. For instance, in August 2022, Scientific Industries, a life science tool provider, launched a sensor platform, through its subsidiary Scientific Bioprocessing (SBI). A large array of sensors are likely to be provided on the DOTS platform to support the existing diversity of applications ranging from microbial fermentation to cell and gene therapy, beginning with sensors for biomass, pH, and DO for various vessel types. These sensors are then paired with the ground-breaking DOTS software.

These factors are anticipated to benefit the segment's growth in terms of revenue generation in the coming years. These factors can boost product availability and competition. For instance, in March 2021, Mettler-Toledo International Inc. acquired PendoTECH, an independent supplier of single-use technology including pH sensors. This acquisition was likely to expand the client base for both companies, thereby driving their business revenue. Such ongoing activities in the space are expected to significantly accelerate segment growth. Despite the presence of a high number of disposables pH sensors, this segment continues to witness demand for sensor innovation among biopharmaceutical manufacturers. As a result, market players are undertaking various market measures to address the industry's needs. For instance, in April 2022, ANB sensors launched a breakthrough pH technology for water quality monitoring. ANB Sensors' breakthrough calibration-free pH sensors, designed to "make pH easy", are cost-effective, robust, and low maintenance. They provide accurate real-time monitoring, link with data platforms and networks, integrate with multi-parameter units, or stand-alone. Moreover, in August 2021, an article was published by BioProcess International, the article discussed the design and performance of a new single-use pH sensor with long shelf life and high stability. The technology is deployed for the launch of Emerson's Rosemount 550pH single-use sensor. Such research articles are anticipated to drive developments in this segment.

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These factors are anticipated to greatly benefit the segment growth in terms of revenue generation in the coming years.

North America is Expected to Hold a Significant Market Share and Maintain Its Dominance in the Forecast Period.

The presence of a substantial number of technology developers, including OEMs and independent suppliers, and the high concentration of bioprocessing facilities in the region are key factors contributing to the dominance of North America. The presence of major biomanufacturers in North America that deploys single-use solutions in their biomanufacturing facilities is anticipated to serve as one of the key driving forces of the market. For instance, in March 2021, Thermo Fisher launched 3,000L and 5,000L HyPerforma DynaDrive single-use bioreactors for cell culture production. The DynaDrive 50L and 500L models were launched in 2020 with new features, including improved sensor technology and other features.

Rising popularity and demand for biotherapeutics led manufacturers to reduce the timeline of final product launches while

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maintaining production yield and quality. Due to the cost and time-saving advantages of disposables over conventional bioprocess instruments, the adoption of single-use technology for the biomanufacturing of biotherapeutics is expected to increase. For instance, in December 2021, Fujifilm Diosynth Biotechnologies invested USD 300 million to expand its advanced therapy and vaccine manufacturing capacity by adding a new single-use cGMP production facility in its Texas site. Furthermore, there was an increased investment in R&D from the US government. As per the 2021-2030 forecast report from CMS.gov, growth in US health spending was expected to accelerate to 4.6% in 2022, primarily driven by faster-projected growth in prices as measured by the national health expenditure deflator (which is expected to grow 3.6% in 2022 versus 2.7% in 2021). Also, the growth rate in utilization is expected to remain elevated as the demand for patient care is projected to stay high.

Hence the increased investment in the research field is likely to promote market growth in the studied region.

Single Use Bioprocessing Probes & Sensors Market Competitor Analysis

The single-use bioprocessing probes and sensors market is fragmented in nature, with several large to small and medium-sized players. Some companies currently dominating the market are Thermo Fisher Scientific Inc., Sartorius AG, Danaher Corporation (Cytiva), PreSens Precision Sensing GmbH, and METTLER TOLEDO (PendoTECH), Equflow B.V., Parker-Hannifin Corporation, Broadley-James Corporation, Malema Engineering Corporation, and Hamilton Company.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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