Virus Filtration - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-09-01 | 115 pages | Mordor Intelligence

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Report description:

Virus Filtration Market Analysis

The virus filtration market size was USD 1.54 billion in 2025 and is projected to reach USD 2.19 billion by 2030, reflecting a 7.37% CAGR. Heightened regulatory focus on viral safety, fast-rising biologics pipelines, wider adoption of single-use systems, and the transition toward continuous bioprocessing are the principal engines propelling the virus filtration market. Suppliers are responding by upgrading membrane materials, integrating automation, and embedding in-line analytics to shorten validation cycles. Heightened investments in mRNA vaccines and gene therapies continue to amplify demand for robust clearance technologies across North America, Europe, and especially Asia-Pacific. Meanwhile, strategic acquisitions among leading vendors illustrate an industry intent on broadening end-to-end portfolios, shoring up supply resilience, and advancing next-generation filter performance.

Global Virus Filtration Market Trends and Insights

Rising Demand for Biologics & Gene Therapies

The T-cell therapy segment alone is forecast to balloon from USD 10.30 billion in 2025 to USD 161.21 billion by 2034, driving unprecedented volumes of viral vectors that must be purified without structural loss. More than 700 active AAV programs require filters capable of maintaining capsid integrity at ever-higher titers. Lentiviral production faces even sharper fouling challenges, making low-adsorptive membranes essential for acceptable recovery. Industry participants consequently invest in predictive

modeling tools to pre-screen filter candidates and cut extensive wet-lab iterations. This surge in biologics underscores the virus filtration market's centrality to next-generation therapeutics.

Adoption of Single-Use Filtration Technologies

Contract development and manufacturing organizations (CDMOs) favor single-use assemblies for campaign flexibility and lower cleaning validation overheads. High-throughput microcarrier cultures can now pair with disposable virus filters rated for multi-barrier removal. Asahi Kasei's Planova FG1, released in 2024, achieves seven-fold faster flux versus its predecessor while retaining compatibility with existing holders. Automated pressure monitoring and integrity-test sockets come standard, aligning with Annex 1 requirements for pre-use post-sterilization testing.

Stringent Validation & Regulatory Approval Timelines

The FDA's revised Q5A(R2) guidance specifies deeper virus panel testing and endorses new detection technologies, pushing firms to update validation protocols and archival records. Cygnus Technologies' MockV kits help predict clearance early using non-infectious surrogates, yet full-scale spiking studies remain mandatory for licensure. Developers must therefore budget for multi-phase pilot work, statistical robustness evaluations, and regulator engagement sessions, lengthening time to market.

Other drivers and restraints analyzed in the detailed report include:

Expansion of CDMO/CMO Outsourcing Models / AI-Driven Membrane Engineering Accelerating Product Launches / High Capital Cost of High-Capacity Filtration Skids /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Kits, reagents, and consumables generated 58.43% of the virus filtration market size in 2024, a testament to their recurring use in every production run. Demand is magnified by the turn toward disposable assemblies, where each lot requires fresh capsules, integrity-test reagents, and prefilters. Rising biologics titers intensify fouling, elevating cartridge replacement rates and bolstering consumables revenue. In contrast, systems revenue is one-time yet rising briskly as next-generation skids integrate data historians, auto-flush features, and digital twin compatibility. Membrane innovations-such as PFAS-free polyamide composites-further differentiate premium models aimed at gene-therapy vectors susceptible to adsorption losses.

Filtration systems are pacing the segment with a 9.65% CAGR through 2030. Vendors highlight planar flow paths that minimize shear and maintain viral vector infectivity. Asahi Kasei's FG1 launch epitomizes this trajectory, delivering seven-fold higher throughput at equivalent log-reduction values. Hardware modularity permits straightforward swap-outs between stainless housings and single-use capsules, appealing to CDMOs juggling diverse client pipelines. Advisory services-ranging from filterability screening to end-to-end validation documentation-are becoming bundled, creating annuity revenue streams even for equipment-centric suppliers.

Batch filtration retained 55.43% of the virus filtration market share in 2024 as legacy stainless facilities opt to extend validated methods rather than embrace wholesale redesigns. Operators value the extensive historical data that batch processes hold, easing regulatory dialogue and post-approval change management. Moreover, disposables readily retrofit existing batch hold tanks, allowing incremental capacity boosts without full facility refit. Nevertheless, the inherent start-stop nature imposes labor peaks and product hold times that hamper total equipment effectiveness.

Continuous and in-line filtration is advancing at a 9.88% CAGR, capitalizing on the broader shift to perfusion cell culture. At 2,000 L commercial scale, steady-state filtrate streams already satisfy global pharmacopoeia sterility norms while halving buffer consumption. Parallel filter arrays mitigate flux decay, and smart valves divert flow when sensors detect impending fouling-safeguarding product integrity without interrupting throughput. Regulators increasingly advocate holistic control-strategy filings, which continuous platforms naturally support via integrated, real-time analytics.

The Virus Filtration Market Report is Segmented by Product (Filtration Systems, and More), Filtration Mode (Batch and Continuous/In-line), Application (Biologicals, Medical Devices, and Water/Air Purification), End User (Pharmaceutical/Biotechnology Companies, and More), and Geography (North America, Europe, Asia-Pacific, Middle East/Africa, South America). The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

North America delivered 43.23% of global revenue in 2024, anchored by the United States' deep biologics R&D pipelines and the FDA's role in setting viral-safety benchmarks. Major capacity investments-such as Fujifilm Diosynth's USD 1.2 billion cell-culture expansion in North Carolina-signal ongoing confidence in domestic infrastructure. Mature supply chains ease access to sterile capsules and validation viruses, giving local plants a time-to-market edge. As more mRNA and gene-therapy candidates move to late stage, filter suppliers are scaling membrane casting lines inside the region to safeguard against cross-border disruptions.

Asia-Pacific is on track for an 8.54% CAGR to 2030, the fastest among all regions. South Korea, Japan, and Singapore headline capacity expansions for mRNA vaccines and viral vectors, often backed by state incentives aimed at pandemic readiness. Pall Corporation's USD 150 million Singapore plant exemplifies multinational faith in the region's talent pool and logistics reach. Regional CDMOs combine attractive cost structures with cutting-edge single-use suites, drawing Western sponsors seeking risk-diversified supply strategies.

Europe preserves a robust footprint underpinned by long-standing GMP rigor and extensive plasma-fractionation capacity. Yet the looming European Chemicals Agency proposal to restrict PFAS could significantly disrupt PVDF membrane availability, compelling filter designers to accelerate PFAS-free alternatives. Nanofiber membranes that deliver high flow and tunable pore size have surfaced as practical substitutes, with Matregenix reporting customizable platforms tailored for virus removal. Regulatory uncertainty around material substitution is prompting parallel validation programs across leading biomanufacturers to future-proof supply continuity.

List of Companies Covered in this Report:

Asahi Kasei / Danaher Corporation (Pall) / Merck KGaA (MilliporeSigma) / Sartorius / Thermo Fisher Scientific / Charles River / Lonza Group / Wuxi Biologics / 3M Purification / Repligen Corp. / Parker Hannifin (Bioscience) / Meissner Filtration Products / FUJIFILM Wako Pure Chemical / PendoTECH / Clean Cells SAS / Alfa Laval / GE Healthcare Life Sciences / 3S Bio (Synartro) / TSI Scientific / GEA Group /

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