MEDICAL AND LIFE SCIENCES: VENTING AND FILTRATION

ABOUT US

At Technology International (est. 1993), we provide cutting-edge solutions to organizations across various industries, including automotive, medical, consumer, electronics, and chemical. We are a global company with a focus on innovations that solve customer challenges. Our customers are most often companies who share our passion for excellence and who want to be the best in their fields. We deliver a high-quality customer experience with our fast response, dedication, and expertise. We are more than a solution provider, we are a long-term, reliable, fair, and transparent partner in your success.

POREX® Corporation is our technology partner and supplier of advanced porous materials.

POROUS MATERIAL PLATFORMS

The changing global healthcare environment requires differentiated, reliable and reproducible medical materials to help provide precision, accuracy and consistency in current and next generation medical and surgical devices. We are the leading suppliers of porous polymer technology in components for the healthcare industry including sintered particles featuring PTFE, PE & PP.

Our expertise in porous plastics design, materials selection, and processes provides cost savings, enhanced performance, purity, accuracy and convenience for a wide range of demanding medical device applications, IVD, molecular and clinical diagnostic sample preparation, liquid handling and microfluidic applications. We provide innovative solutions in filtering, venting, wicking, diffusing, absorbing and applying challenges for our customers. The versatility and flexibility of sintered porous plastics improve device reliability, functionality, and efficiency in many applications.

PHYSICAL PROPERTIES

Polymer	Pore Size (microns)	Pore Volume (%)	Operating Temperature (°C)
Polyethylene (PE)	5 to 250	25 - 60	82
Polypropylene (PP)	100 to 300	30 - 40	121
Polytetrafluoroethylene (PTFE)	0.1 to 60	25 - 60	260+

POROUS PTFE

Our PFOA-free PTFE membranes, available in expanded or sintered options, excel in venting and filtration. Their pore size ranges from 0.1 micron up to 60 micron, offering superior biocompatibility and durability. With BFE ranging from 99.99% to 99.9999%, they suit various medical and pharmaceutical applications.

Performance

Airflow, filtration efficiency, water entry pressure, pore size

Purity

Clean grade materials, processing steps, and leachable and extractable grading

Compatibility

Chemicals, temperature, and liquids

Mechanical Strength

Durability against wear and tear, flex strength, and tensile strength

Lifespan and Durability

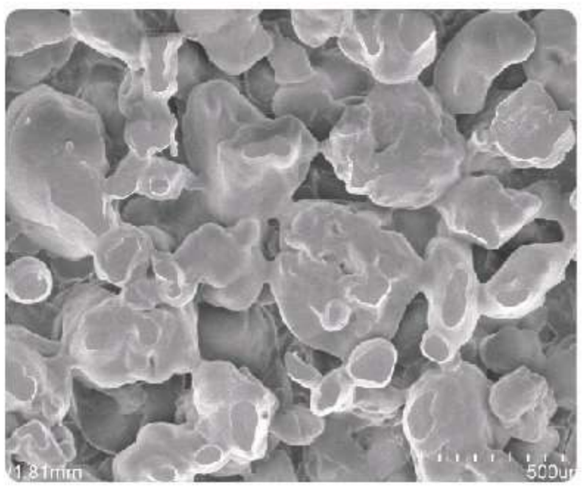
Shelf life stability, and environmental weatherability

Ease of Integration

Weldability, handling considerations, surface edge finish, and compressibility

SINTERED PTFE

Naturally Robust: Unmatched durability with naturally super-hydrophobic properties



DURABILITY: Battle-tested against harsh conditions

CLEANLINESS: Material Purity with no leachables for sensitive applications

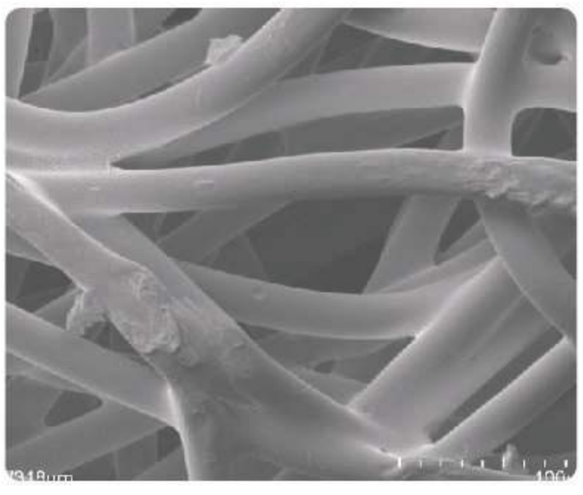
EASE OF USE: Designed for straightforward handling and use

IDEAL FOR: Applications demanding strong fluid, particulate, and bacteria barriers

MANUFACTURING MASTERY: Sintering enhances robustness, ensuring lasting performance

EXPANDED PTFE

Versatility Meets Excellence: Balances airflow with environmental protection



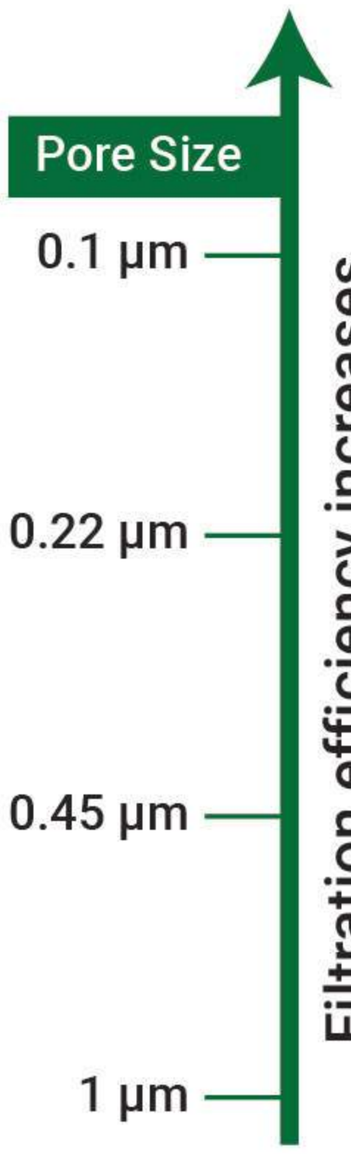
AIRFLOW: Optimized for breathability and efficiency

PRESSURE TOLERANCE: Withstands high water entry pressures

WELDABILITY: Seamless integration into diverse systems

IDEAL FOR: A range of applications needing best of both worlds from flexible venting and filtration

MANUFACTURING MASTERY: Expansion process broadens filtration capabilities, ensuring reliability



POROUS PP/PE

Sintered Polyethylene (PE)

This is the most commonly used material with a large range of pore sizes available (5 to 250 microns). It is a strong, lightweight thermoplastic that can withstand more process variation than other materials.

Sintered Polypropylene (PP)

For strong applications where rigid structure and a large pore size is desired, PP thermoplastic material is an excellent option. It shares many of the same chemical and additive compatibilities as PE material.

Sintered Polyethylene (PE) and Sintered Polypropylene (PP) accept:

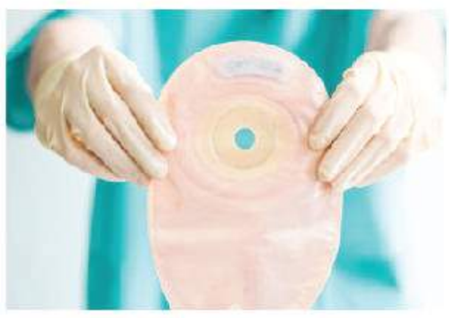
- Self-sealing, liquid barrier
- Hydrophilic treatments
- Colorants
- Color change
- Ion exchange
- Bactericidal / bacterial static
- Carbon, potable water, odor elimination

VENTING

Venting is a critical device function that facilitates proper air movement to provide pressure relief, allows for cooling, and provides protection against the ingress of liquids, dust, microbes, and other particles that could be harmful to internal components. Vent plugs or sintered vents are used extensively in venting applications for medical device to:

- Maintain the flow path in an enclosed diagnostic device
- Protect healthcare workers from exposure to biohazards when collecting patient samples
- Maintain equal pressure in enclosed systems

Infection Control



Urology and Ostomy Care

Injection Therapy

Medical & Pharma Packaging

Sterilization Containers

FILTRATION

Filtration is the process of separating a solid or a liquid from a mixture via a porous filtration media to prevent contamination in medical applications. Offering both surface and depth filtration functionality, our porous structures are comprised of an omnidirectional, interconnecting matrix, which can be optimized for filtration efficiencies to match your application's requirements. Sintered porous plastics are widely used in the healthcare industry for filtration in medical devices like inhalers and nebulizers. They contribute to precise drug delivery and maintain sterility with the help of antimicrobial additives.

Medical Filtration

API

Infection Control

Dialysis

Drug delivery

Laboratory Filtration

Pipette Tip Filters

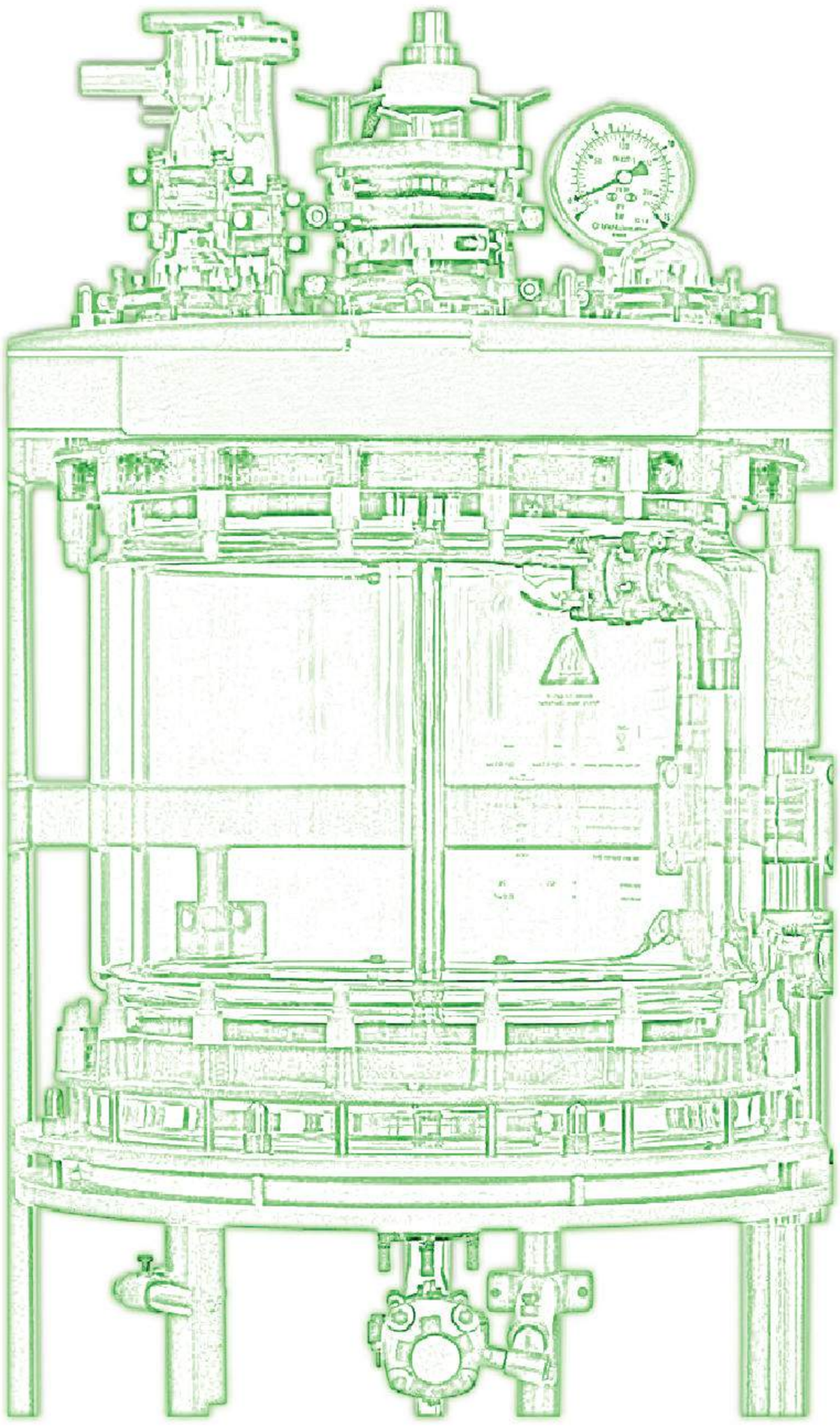
ESR

Solid Phase Extraction (SPE) Frits (Chromatography Media Support)

Sample Preparation Filters

API AND PEPTIDE SYNTHESIS

Active Pharmaceutical Ingredients (APIs) are crucial components in the creation of pharmaceutical or medical products, where they are combined or formulated with excipients. The production of APIs involves either biotechnological or chemical processes, both of which rely heavily on filtration to ensure the production of high-quality ingredients and pharmaceuticals. Filtration is essential throughout the entire manufacturing process. In chemical manufacturing, PE sheets are employed for various purposes, such as separating undesired particles and microorganisms, extracting crystallization products, and protecting system components. This comprehensive approach ensures the purity and efficacy of the final pharmaceutical products, maintaining stringent quality standards and safeguarding patient health. The role of filtration in API production cannot be overstated, as it is vital for achieving optimal results. By ensuring the removal of contaminants and maintaining the integrity of the ingredients, filtration supports the overall effectiveness and safety of pharmaceutical products.



PE/PP sheets are the most commonly used material with a large range of pore sizes available (5 to 250 microns). These are strong, lightweight thermoplastics that can withstand more process variation than other materials.

Thickness (mm)	Porosity (µm)	Material	Part Code
3.0	7-12	PE	XS-99480
3.0	40-100	PE	XS-49050
3.0	70-160	PP	XS-49090
5.0	70-160	PP	XS-49100-BW
5.0	80-130	PE	XS-49060

BIOVENT®: GL45 CAPS FOR STERILIZATION

BIOVENT® GL45 vented caps serve as the ideal closures for laboratory bottles used for sterilising and storing media or buffer solutions. They are suitable for aerobic microbial, shaker, and suspension cell cultures. These caps feature a sPTFE membrane that facilitates sterile gas exchange while preventing the entry of contaminants and liquids.

FEATURES & BENEFITS

BIOVENT® Caps address the issues of contamination and bottle failure due to vacuum & pressure build-up during autoclaving cycles.

The sPTFE membrane's microporous structure allows bi-directional sterile gas exchange while blocking liquids and contaminants. This enables pressure equalisation, allowing sterilisation in an autoclave with the screw cap tightened, ensuring the sterility of the bottle contents.The sPTFE membrane is ultrasonically welded to the cap, forming a durable seal.

The caps are reusable multiple times, reducing cost.

PROPERTIES

The sPTFE membrane has a pore size of 0.1 µm. Combined with large venting windows in the cap, it allows efficient gas exchange

The caps can withstand autoclaving at 121°C for 20 minutes or 134°C for 3 minutes

The caps are resistant to temperatures up to 140°C

MATERIAL COMPLIANCE

The sPTFE filter material is biocompatible, conforming to USP Class VI

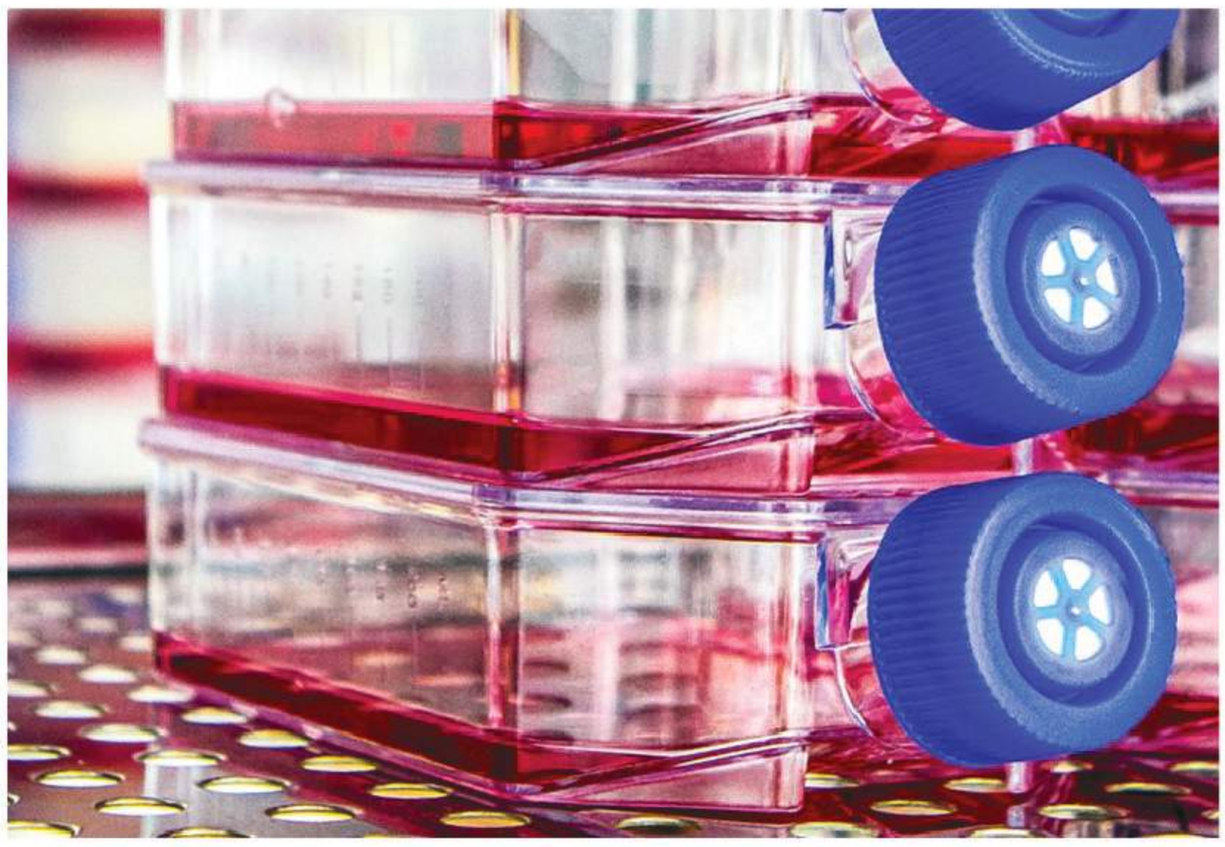
>99.999% Bacterial Filtration Efficiency (BFE)

Free from perfluoro-octanoicacid (PFOA)

Free of animal derived components (ADCF)

USP Class VI

A Autoclavable



Delivering innovation driven solutions to the world

TECHNOLOGY INTERNATIONAL

PorVent®

POREX Filtration Group®

PREFERRED CONVERTER

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