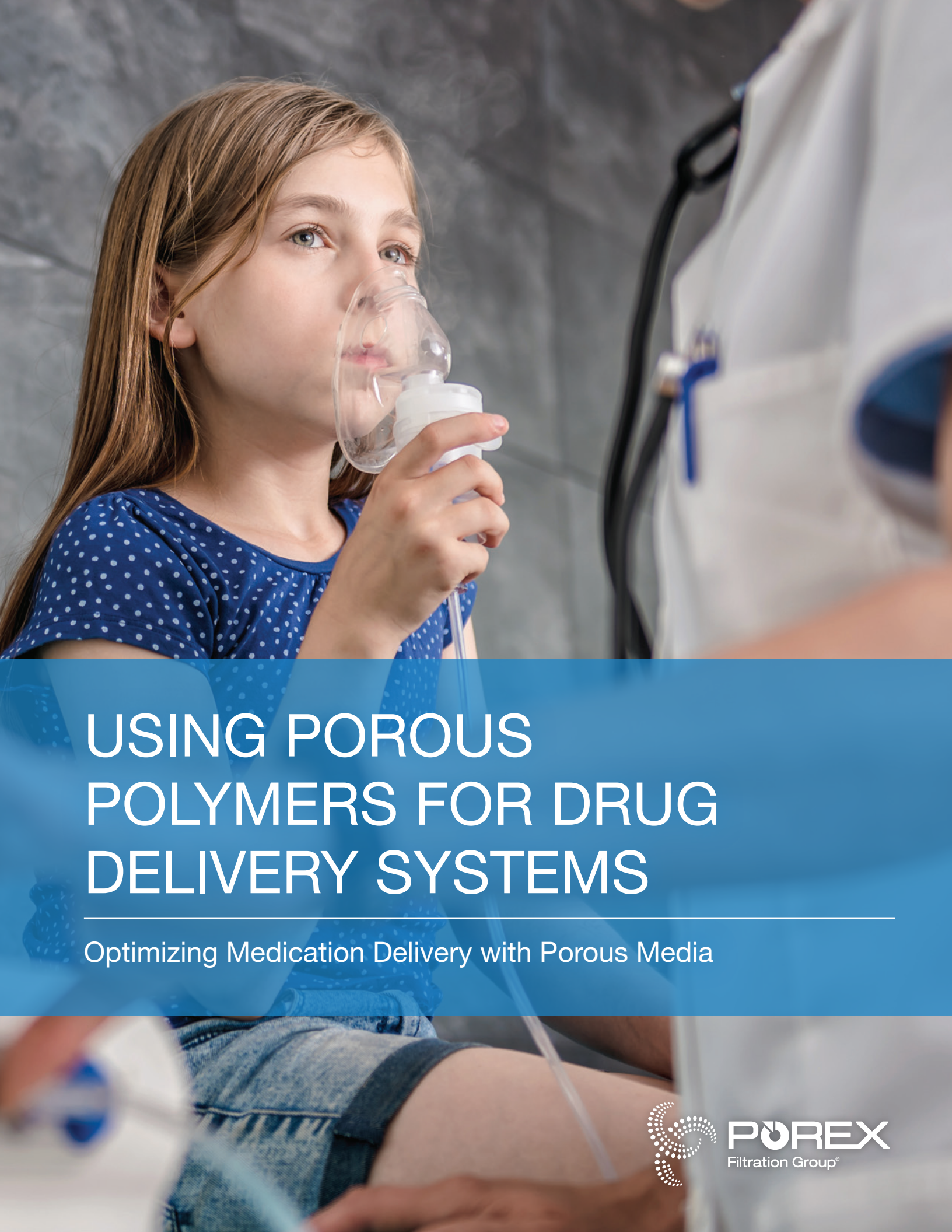


USING POROUS POLYMERS FOR DRUG DELIVERY SYSTEMS

Optimizing Medication Delivery with Porous Media

POREX Filtration Group®

Porous media plays a pivotal role in the development of highly functional and efficient drug delivery device components in the pharmaceutical industry.

The fundamental advantage of porous media lies in its ability to modulate drug release rates, ensuring sustained and targeted delivery to specific sites in the body. By tailoring the porosity, size, and surface properties of these materials, manufacturers can fine-tune the kinetics of drug diffusion, enabling personalized medicine approaches and reducing adverse effects associated with traditional drug delivery.

Porex® is your trusted partner in drug delivery innovation, whether it's seamlessly integrating porous media components into cutting-edge designs or optimizing your current product lines. Our extensive portfolio of customizable porous media solutions and material science expertise help companies produce devices that target specific patient needs, making it easier for them to meet and exceed industry standards.

Inhalation Devices

Inhalation devices are used to deliver pharmaceuticals with precision and calculated dosing. However, patients often make mistakes when using these devices, which can harm their health. Inhalation devices rely on filters and vents to protect users from harmful substances and regulate airflow for precise drug delivery. Reservoirs and wicks also play a crucial role in the manufacture of inhalers, pump sprays, and nebulizer devices, ensuring accurate and consistent dosing through fluid management.

Design Challenges Solved by Porous Media:

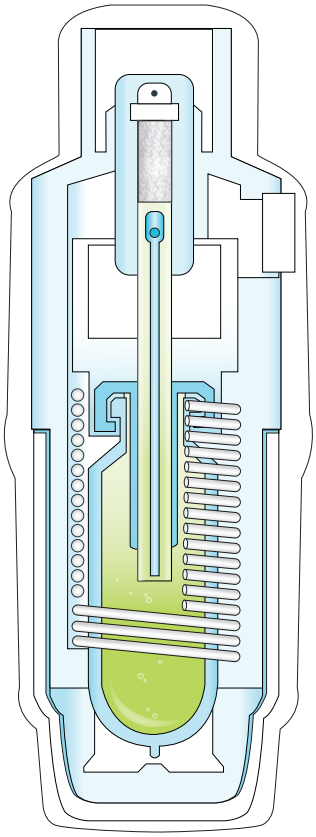
- Inefficient or complicated assembly processes, simplified with robust materials and customizable geometries.
- Filtration media that captures and removes impurities with a 99.9% nominal viral and bacterial filtration efficiency.
- Venting media that enable efficient delivery of therapeutic agents with regulated airflow.
- Wicking media that enhances fluid transfer efficiency and drug delivery precision.

Common Applications of Porous Media:

- Dry powder inhalers
- Metered dose inhalers
- Soft mist inhalers
- Nebulizers
- Nasal sprays

Material Options:

- Sintered porous polymers
- Porous fiber
- Track-etched membranes
- PTFE vent membranes



Topical Applicators

Topical drug delivery systems require accurately releasing and applying liquids or solids onto the skin. The complexity of these solutions can be easy to ignore. Seemingly basic designs require a sophisticated interplay between different types of porous material components – each performing different functions – in order to produce a dependable system for controlled and precise application.

Design Challenges Solved by Porous Media:

- Inefficient or complicated assembly processes, simplified with robust materials and customizable geometries.
- Wicking media that optimizes fluid transfer from the reservoir to the tip surface.
- Application media that can be customized to accommodate a variety of product viscosities and compositions.

Material Options:

- Polyester (PE)
- Polypropylene (PP)
- Polyethylene (PE)

Common Applications of Porous Media:

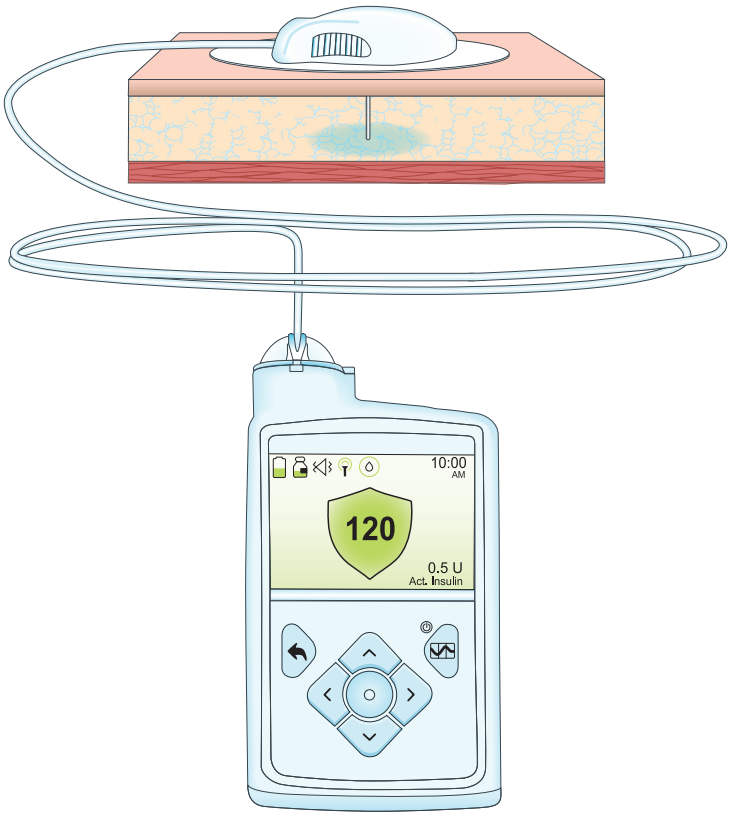
- Topical Applicator Reservoirs
- Topical Applicator nibs

Injectable Devices

Injectable devices offer a range of specific advantages compared to alternative drug delivery routes. With injectable formulations, devices must utilize venting membranes to regulate flow rate for pressure control while using filters to remove impurities, ensure sterility, and minimize the risk of complications.

Design Challenges Solved by Porous Media:

- Inefficient or complicated assembly processes, simplified with robust materials and customizable geometries.
- Filtration media that captures impurities and minimizes the risk of cross-contamination.
- Venting optimized to maintain pressure balance during medication administration.



Common Applications of Porous Media:

- Glass ampules filters
- Auto-injectors
- Reusable syringes
- Wearable medical devices

Material Options:

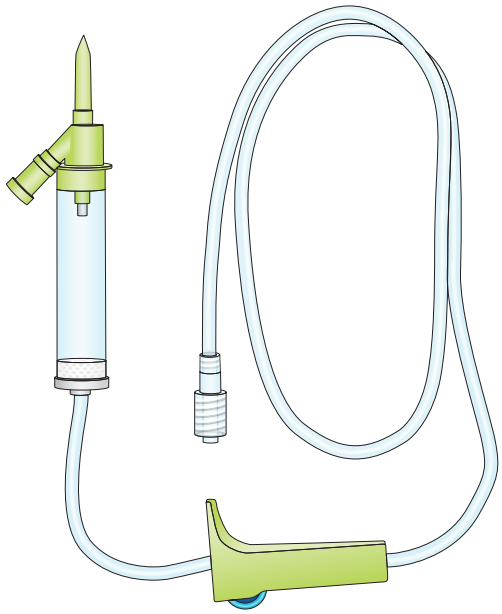
- Sintered porous polymers
- Track-etched membranes
- PTFE vent membranes

Infusion Therapy

Infusion therapy devices play a critical role in accurately delivering fluids and medications to patients. To ensure safe and precise administration, these devices incorporate various safety features, including filters and vents. Infusion filters are essential in preventing the entry of particles into the human body, safeguarding against blood clots, and facilitating controlled drug distribution, while infusion vents protect contaminant ingress and enable pressure equalization.

Design Challenges Solved by Porous Media:

- Inefficient or complicated assembly processes, simplified with robust materials and customizable geometries.
- Filtration media that prevents particles from entering the body and safeguards against blood clots.
- Venting media prevents the ingress of contaminants and enables effective pressure equalization.



Common Applications of Porous Media:

- Infusion pump filters
- Infusion pump vents

Material Options:

- PET Track-Etched Membranes unlaminated
- PET Track-Etched Membranes laminated with PET/ PP non-woven material

About Porex Corporation

Porex Corporation, a business of Filtration Group, is a global leader in developing custom-engineered porous polymer solutions that turn into high-value functional components in our customers' end products. As part of Filtration Group, we work with our customers to make the world safer, healthier & more productive. For over 60 years, our innovations have helped over 1,500 manufacturers in 65 countries overcome complex product development challenges so their products can be brought to market quickly. With an extensive global manufacturing network and unmatched engineering expertise, Porex is the perfect fit for your unique porous material needs.

Want to learn more about how porous media works in drug delivery devices? Check out our case studies.

Contact us for more information

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