

**FILTRATION FOR PHARMACEUTICAL INDUSTRY**

## INDUSTRY OVERVIEW

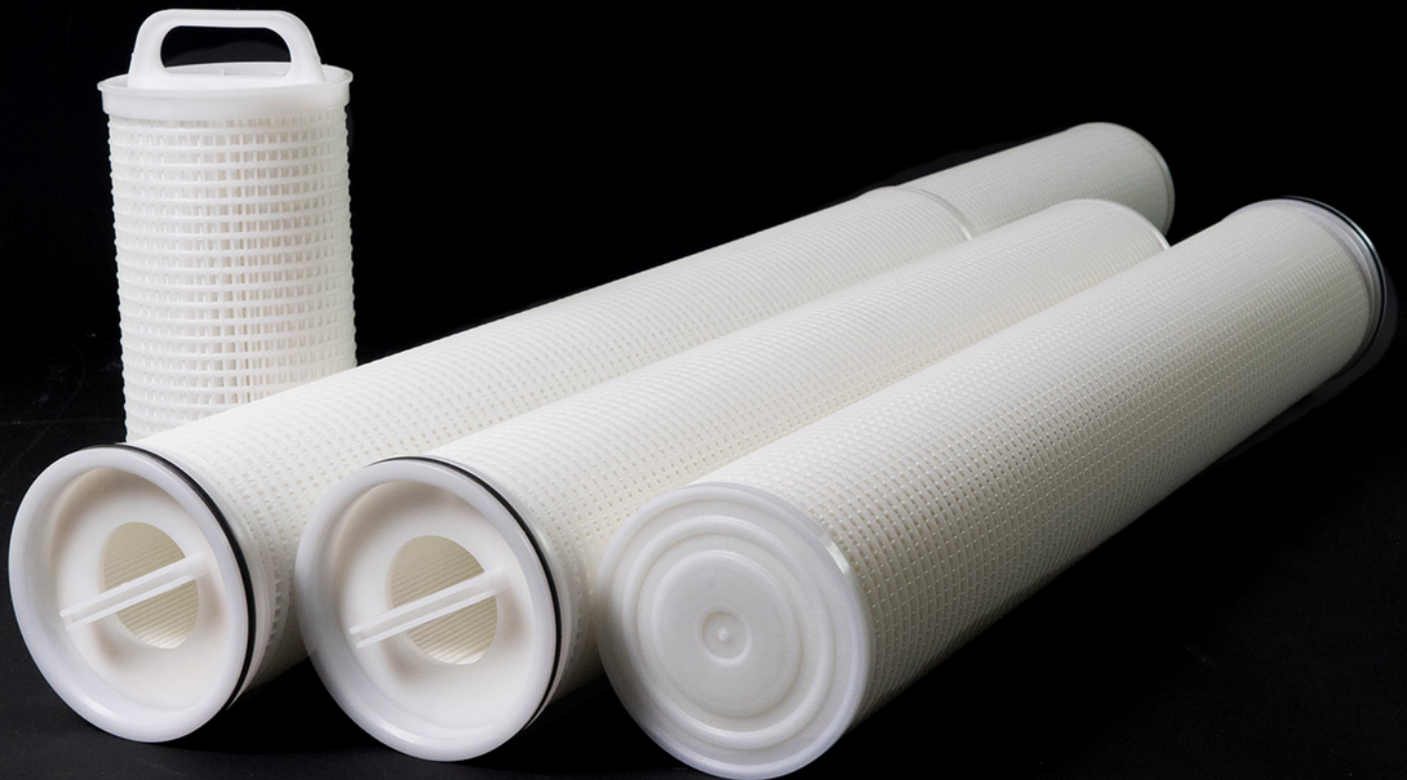
The Pharmaceutical Industry plays a critical role in developing, producing, and distributing medications and medical devices for the prevention, treatment, and management of various diseases and health conditions. Wherein crucial aspect of pharmaceutical manufacturing is maintaining stringent quality standards throughout the production process. Filtration is an integral part of pharmaceutical manufacturing, used for various purposes such as separating particles, clarifying solutions, sterilizing liquids, and ensuring the purity of the final product.

Filtration processes are employed at different stages of drug production, including raw material preparation, intermediate processing steps, and final product formulation.

## WHY M19?

Across the globe, scientists and researchers are pushing the boundaries of possibility, striving to improve existing materials and invent novel metamaterials that open new technological frontiers. In the Pharma Industry, M19 stands at the forefront, offering game-changing Testing Technologies. With our world-leading characterization products, lab testing, and certification division, we empower you to create the products of the future, elevating your competitive advantage and market position. Our cutting-edge lab technology and dedicated support enable clients to achieve breakthroughs in product development.

Working alongside M19 means access to passionate teams committed to supporting you in overcoming obstacles and finding innovative solutions for your challenges.



## PRODUCT PORTFOLIO

### INTEGRITY ANALYZER

Several methods are used to perform Filtration Integrity Tests, including:

- **Bubble Point Test:** This test measures the pressure at which gas bubbles are forced through a wetted membrane in upstream direction. A sudden drop in pressure indicates a breach in the filter's integrity.
  - **Diffusion Test:** In this test, a gas with known properties diffuses through the filter in upstream direction. Changes in pressure are monitored to detect any defects in the filter.
  - **Pressure Hold Test:** This test involves pressurizing the upstream side of the filter and measuring pressure decay over time. A significant pressure drop indicates filter failure.
  - **Water Intrusion Test:** This test assesses material integrity by measuring resistance to water penetration, ensuring barrier effectiveness against moisture in industries.
  - **Forward Flow Test:** It measures the volume of liquid that passes through the filter under pressure in upstream direction. Any change in flow rate can indicate filter integrity issues.
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- **Standard:** ASTM F316
  - **Measurement Range:** 0.1-100 microns
  - **Test Duration:** 5 minutes
  - **Precision:** 0.1%





## DENSITY ANALYZER

Density Analyzer is used to determine the density and volume of solids, powders, and porous materials with high accuracy. It operates based on the principles of Boyle's law and the ideal gas law. The main components of a helium pycnometer include a sample chamber, an expansion chamber, a helium source, a pressure transducer, and a control unit. The helium gas pycnometer provides accurate and precise true density measurements, especially for samples with irregular shapes or voids.

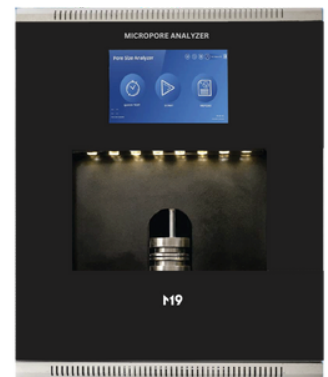
- Standard: ASTM D5550-14, ASTM 4892-14, ASTM B923-10, ASTM C110-15, ASTM D2638-10, ASTM C26
- Measurement Range: 0.1-135g/cc
- Test Duration: 10 minutes
- Precision: 0.1% F.S



## MICROPORE ANALYZER

Micro Pore Analyzer device stands out as a cutting-edge pore size analyzer, offering remarkable capabilities. Its advanced technology relies on both liquid displacement and capillary flow porometry, making it highly efficient in characterizing the pore sizes of various materials. The device is specifically tailored for the filtration industry, making it an ideal choice for evaluating the performance of a wide range of filtration products. Whether it is membranes, filter media, or other filtration components, it is designed to provide accurate and detailed insights into the material's pore structure. It enables thorough assessments of filtration products, ensuring they meet stringent industry standards and customer requirements.

- Standard: ASTM F316, ASTM D6767
- Measurement Range: 0.1-100 microns
- Test Duration: 0-3 min
- Precision: 99.99%



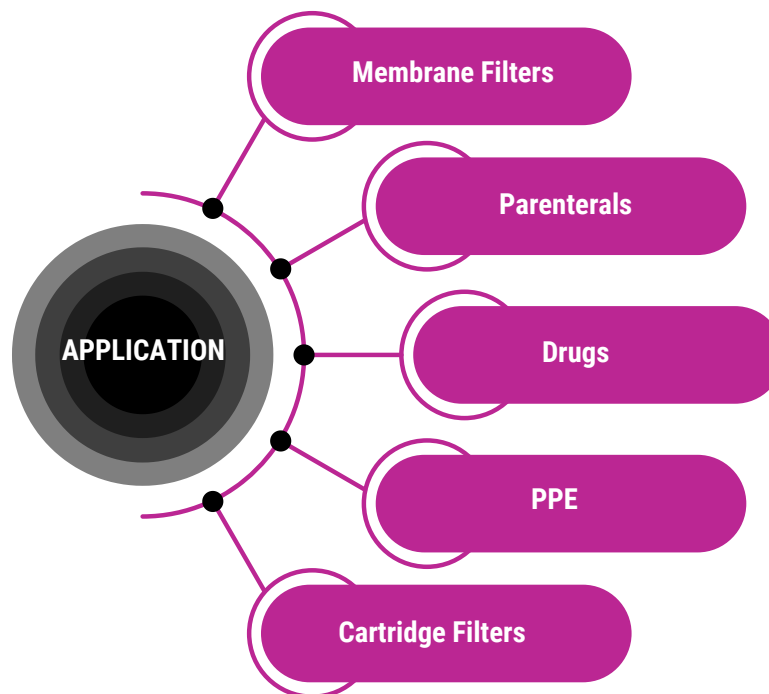


## SURFACE AREA ANALYZER

Surface Area Analyzer, also known as a gas adsorption analyzer or BET analyzer, is a sophisticated instrument used to measure the specific surface area of solid materials. It is based on the principles of gas adsorption, specifically the Brunauer-Emmett-Teller (BET) theory. Surface area analysis is essential in various scientific and industrial applications, including catalyst characterization, pharmaceutical development, and materials research.



- Standard: ISO 9277
- Measurement Range: 0.5-1000 m<sup>2</sup>/g ; 0.5-300 nm
- Test Duration: 2 hours
- Precision: 0.15% F.S





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