

Filtration Technology Research

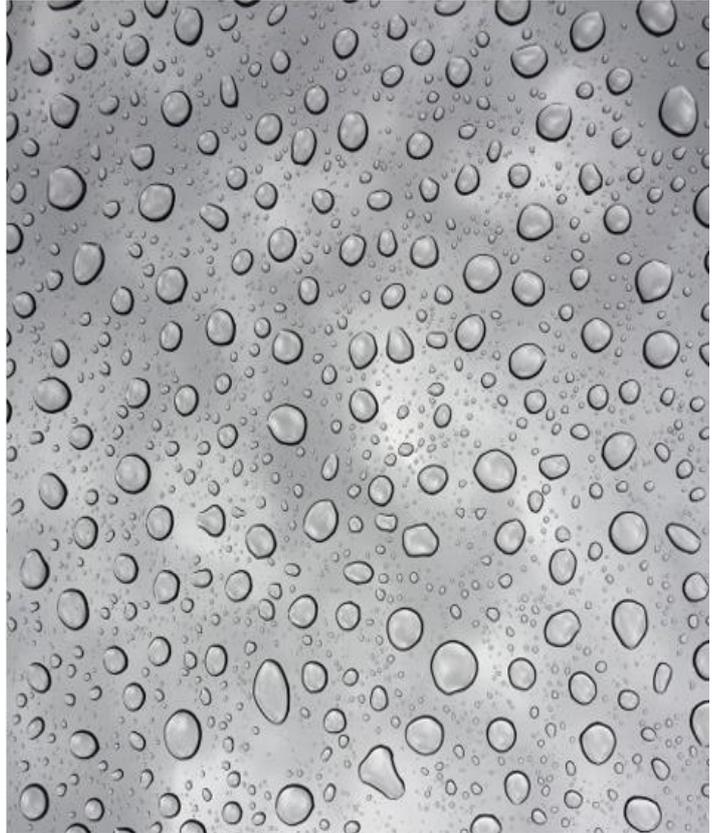


About us

Filtration Technology Research is research organization with the objective to deliver advanced filtration systems based on advanced technologies in building specific hollow fibers, flat sheet membranes and other melt blown devices. Its extensive knowledge is based on its long experience in developing filtering system using hollow fibers in blood and water purification.

Importance of Filtration

Filtration may be the oldest technology to sustain life but it is one of the most important industries: at home or in all industries. The danger to humans and the environment depends whether it is hydrocarbon, endocrine disruptor, pesticide, parasite, bacteria, virus, nitrates /nitrites and heavy metals ions such as Lead, Selenium, Copper, Arsenic, or Nickel. The ever-growing industrialization of the world, its unlimited population growth and consumption trends all lead to increase pollution have led to making water a major public health issue. To guarantee this we apply basic rules: adding insult to injury, the piping system is so old and losses of up to 1/3 of the “good water”.



Product Quality

Filtration Technology Research aims to develop different techniques for the filtration of fluids (both air and water) and by the same token arrive to improve personal and public health (purification of blood).

Western developers normally meet government specs (ISO, EN, FDA, NSF etc.) and provide “good to use devices”

Our target is to provide a full spectrum of these devices while pushing the filtration level higher and higher.

Regulatory Compliance

We apply the strictest norms for our filters:

- ✓ Quality Control of raw materials (virgin and 1st grade quality)
- ✓ The equipment used is the best of its kind
- ✓ QC managers track manufacturing records to help our users
- ✓ ISO 9001 total Quality Management System,
- ✓ ISO 16890 to test and validate the outcome of these products
- ✓ NSF 62 for water filtration
- ✓ Correctly classify the products as a function of the latest international rules



High product efficiency

As to the how we can produce at competitive prices is linked to our low scrap rates and equipment efficiency. Low price is not synonymous of low quality: we do not deviate our eyes from our target: serve our users.

We want to deliver high quality products at reasonable prices: this makes our job harder, but we accept the challenge. FTR's cost-effectiveness is achieved by a longer service life, greater in-depth retention and less frequent changes.

Guarantee of many years work

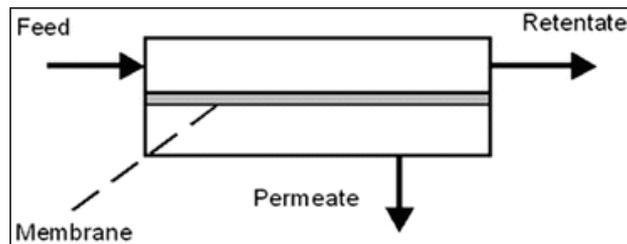
Filtration Technology Research (FTR) guarantees that its products comply with their published specifications according to current standards and if and when used in accordance with the provided instructions for use

Filtration Technology Research makes no other express or implied warranty. Filtration Technology Research agrees to repair or replace the non-conforming product, at its discretion, provided that the customer has notified the commercial service of Filtration Technology Research, in writing providing proof of purchase, all documentation, notes and any exchanges with FTR. This limited warranty covers the life of the product.

Our Products

Membrane filtration

In broad terms, membrane is a semi-permeable barrier which allows the passage of certain components of the feed solution while retaining others. Owing to this feature with applied positive transmembrane pressure membrane separates the feed liquid into two streams: retentate and permeate. Retentate is a fraction of the feed stream which was retained by the membrane and is enriched in components not allowed to pass through the membrane because of their greater size compared to the pores of membrane. While the components of smaller size than membrane pores pass through the membrane to form a permeate stream.

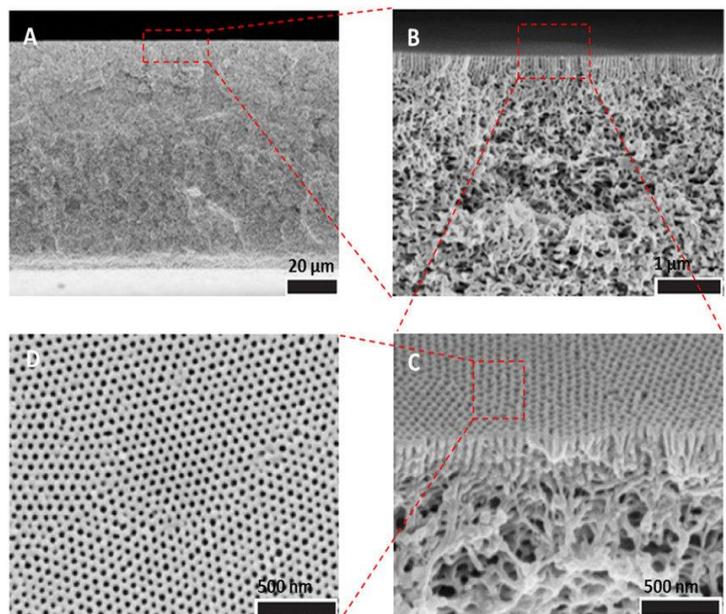


Filtration Technology Research offers a wide range of polymeric membranes in two shapes: flat sheet and hollow fiber.

Flat sheet membranes

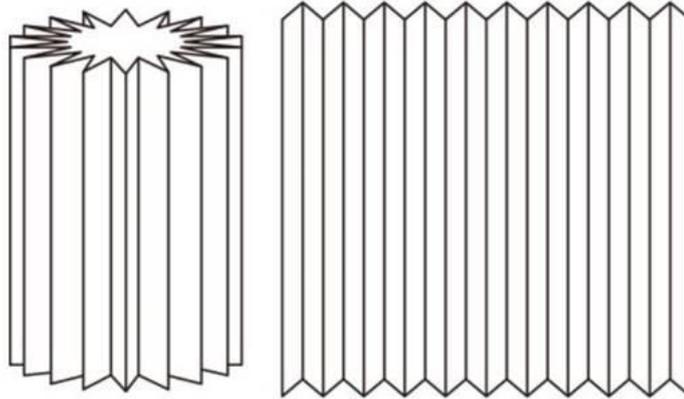
As the name foretells, flat sheet membranes are the semi-permeable barriers fabricated in the form of sheets. To ensure enhanced permeability these membranes have an asymmetric structure across its thickness. The top layer (also known as skin layer) possesses pores of smallest size, while the size of pores in underlying layers increase progressively. The part under the skin layer is inert and acts as a mechanical support to insure the integrity of the flat sheet device which is subjected to high pressures of the feed stream.

Flat sheet membranes are conceived to satisfy particular intended applications requiring different configurations. Single layered flat sheet membranes are widely used in laboratory and research practice where the quantities of feed solutions are limited. While the industrial applications require treatment of much larger volumes. So flat sheet membranes are assembled to offer higher surface contact. In particular, flat sheets are either pleated and placed in a tubular shell or assembled in so-called spiral wound modules. Both these approaches allow greater productivity with lower footprint.



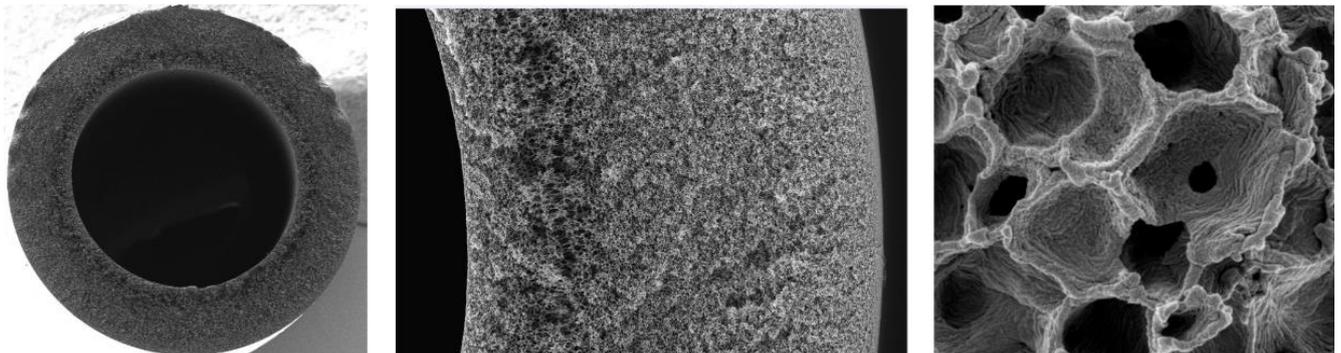
Maximization of Surface-to-volume ratio is a design strategy to minimize filter footprint and improve filtration process economics. Pleating is one of such strategies when dealing with flat-sheet membranes. Pleated membrane formats commonly are used to achieve that goal for sterilizing-grade filters operating in dead-end mode (also known as *normal-flow filtration*).

Schematic drawing of pleating of a flat membrane

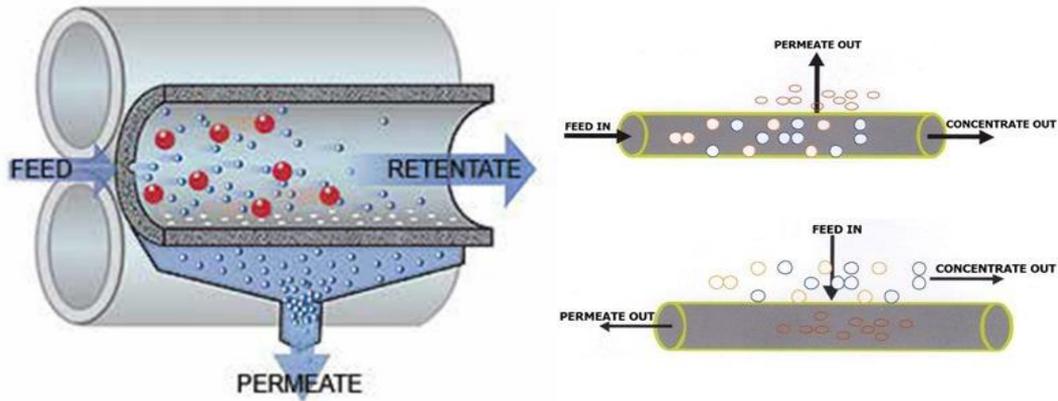


Hollow-fiber membranes

Hollow fiber membranes are capillary fibers with diameters ranging from 3.0-0.2 μ and wall thicknesses around 20-500 μ . This type of membrane is considered to be the most economical as while assembled in a module, these modules have high surface-to-volume ratio (high surface area of membrane in small volume of the module). In hollow fiber membranes, filtration occurs through the porous wall and similarly to flat sheet membranes, the pore size of the wall defines which component will be transferred through the membrane and which ones will be retained.



Depending on application and the morphology of membrane cross section, hollow fiber membranes can be used in two different modes: inside-out and outside-in. The former mode means that the feed solution is supplied inside the hollow fiber and the permeate is collected on the outside. While the latter mode implies that feed stream is sent on the outside of the fibers and the filtrate (permeate) is collected inside the fiber.



Raw Materials Properties Comparison

- PSU/PES have tight pore sizes while PVDF have a large spread
- PSU/PES have wide pH resistance but limited chlorine resistance on the contrary PVDF has limited pH resistance but wide chlorine resistance
- PSU/PES have low mechanical strength while PVDF has excellent ductility
- PSU/PES can be made into a tight UF pore size while PVDF has a wide pore sizes

Our Products

Our products include various membranes and coarse filters

We manufacture and assemble the following types of membranes:

- Microfiltration
- Ultrafiltration

We have extensive experience in using various materials as PVD, PES, PSU etc.

Our coarse filters could be further categorized as

- Volume bulk filters known as well as in-depth filters
- Surface filters known as well as screen filters (usually pleated filters)

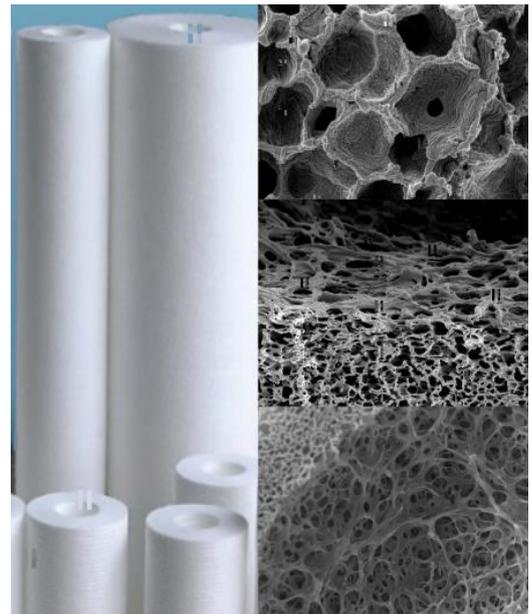
There are 2 prominent members in the first class:

Polypropylene melt blown, Charcoal Block

There exists however, more types of pleated media:

Both hydrophobic and hydrophilic PTFE and PVDF

And a variety of other polymers known for their specific properties: CA/CN, PA 6/66, PES; Polypropylene and PTFE.



Polypropylene Melt Blown Filters



Polypropylene melt-blown filters are the "in-depth" filters; they capture particles throughout the entire filter depth, resulting in an exceptional high retention capacity, conferring on them a longer lifespan hence fewer changeouts which renders these filters more economical. High filtration rates along with low pressure drops make these filters a perfect choice for pre-filtration in water treatment or membrane filtration.

Technical Specifications: PP

Material	polypropylene fiber
Internal diameter (Standard) Φ_{in}	28 mm
Customized Φ_{in}	25, 64 mm
External diameter(Standard) Φ_{out}	63 mm (2.5")
Customized Φ_{out}	> 35 mm (for Φ_{in} 25)
	> 38 mm (for Φ_{in} 28)
	> 70 mm (for Φ_{in} 64)
Length	10"- 40" (254-1016 mm)
Pore size grades	1, 5, 10, 20 μ m
Weight	100 g \pm 5
Temperature range $^{\circ}$ C	0 to +80

Pleated Filters



Due to its high contact surface, pleated cartridge filters have high level of dirt retaining capacity, can handle high flow rates, as well as treat different chemicals (compatibility). Due to these features they are ideal and cost-effective for both water and air.

- Excellent chemical compatibility
- Pleated design increased the filtration area
- Low pressure drop, long service life
- Wide range of grades

Technical Specifications: Polypropylene Pleated Filter

Filter media	PP,PES, PTFE, PVDF
Diameter Φ_{out}	68 mm
Diameter Φ_{in}	28 mm
Length	10", 20", 30", 40"
Pore Size	0.1, 0.22, 0.45, 0.65, 0.8, 1.2, 3, 5, 10, 15, 20 μ m
Working temperature	\leq 80 $^{\circ}$ C

Pleated filters are used when high flow rates & long service life are required. These have various endings depending on the OEM supplier. We recognize:



Choice of O-rings/gaskets :

Silicone (S), Buna N (N), EPDM (E), Encapsulated silicone (FEP), Viton (V)

Charcoal Block



Charcoal block filter removes chlorine, taste and odor, and organic chemicals. The origin of the charcoal imparts on it some qualities due to the mesopores and micropores they contain, their distribution and the temperature at which they were produced. These filters have high flow rates and offer low differential pressure between inlets/outlets. The contact time between the water and the carbon block is long enough to permit an efficient exchange cartridges are produced in a controlled environment and manufactured according to ISO9001. Our patented technology imparts on these Carbon filters different qualities such as removal of heavy metal ions, endocrine disruptors, pharmaceuticals, hydrocarbons etc.

Technical Specifications: Charcoal Block

Primary filter media	Activated carbon block
Diameter Φ_{out}	68 mm
Diameter Φ_{in}	28mm, 30 mm
Empty weight (without water)	370 g
Water temperature	4 - 38 °C
Life span	6 - 8 months (depending on the quality of the incoming water)
Length	10", 20", 30", 40"

Multi-layer Water Filter

By using different charcoals, we can treat different pollutants (metal, organics etc.)



Our products are not limited only to the ones specified in this brochure .To discover more about our company and our products do not hesitate to visit our website by scanning the QR code below or write an e-mail to our team. We will be more than pleased to support you.

Why us?

- Unique water and air filtration products to meet all applications
- A deep process knowledge
- Excellent technical and validation support
- Cost-effective products



10 Avenue de Scandinavie, 91940 Les Ulis, France



FTR@f-t-r.org

