



## Introduction

Microfiltrex Chemifil cartridges are based on a polypropylene membrane of uniform thickness and high pore volume, with a homogeneous structure and controlled pore sizes. Designed for the removal of sub-micron organic and inorganic particulate matter, the screen filtration characteristics of the membrane ensures that particles greater or equal to the pore size are retained on the membrane surface or within the media structure. The inherent structural stability of the membrane eliminates any risk of media migration and minimises the release of particles smaller than the removal rating even under impulse conditions.

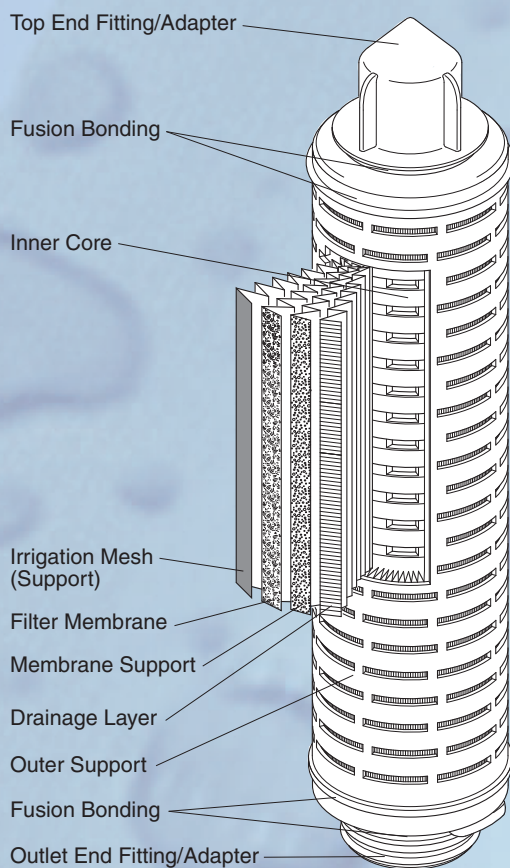
Manufactured from naturally hydrophobic pure polypropylene, Chemifil cartridges are guaranteed to provide media integrity throughout their useful life. Combining exceptional resistance to chemical attack with high thermal stability, Chemifil cartridges are ideal for the most demanding microfiltration applications. Particularly suitable for the filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants. Chemifil cartridges can be used for a wide range of sterile venting and gas filtration applications and are well suited to applications where minimal extractables can be tolerated due to their all-polypropylene construction.



## Chemifil Polypropylene Membrane Cartridge Filters

### Features and Benefits

- All polypropylene construction minimises extractables.
- Fusion bonded for high integrity and minimal extractables.
- Hydrophobic membrane suitable for gas filtration.
- Microporous membrane achieves removal ratings and efficiencies not possible with melt spun media.
- Cold sterilisation capability
- Suitable for filtration of aggressive liquids due to inert nature of materials of construction.
- Long steaming life.
- FDA approved materials of construction for biosafety.
- Non-destructively integrity testable



## Cartridge Construction

Cartridge construction is based on a multi-layer combination of filter medium, support and irrigation mesh, carefully pleated and thermally seam-bonded to optimise the filtration area and achieve efficient flow throughout the cartridge. As a consequence, the combination of a low clean differential pressure and an effective media area of 0.7m<sup>2</sup> per 250mm (10") module, high dirt holding characteristics are assured.

Overall cartridge integrity is achieved by the fusion bonding of all components, guaranteeing the absence of bonding agents such as resins and polyurethanes. With all cartridges being manufactured from virgin polypropylene and the absence of medium wetting surfactants, total extractables are kept at minimum levels.

## Material Conformity

The bio-safety of all materials used in the manufacture of Chemifil cartridges is guaranteed by complying with FDA requirements and USP Class VI for plastics, having passed the Systemic Injection, Type B intracutaneous and Physico Chemical tests. Furthermore, cell culture tests using the MEM Elution method confirms all materials to be non-cytotoxic.

## Quality Assurance

Chemifil membrane cartridges are manufactured under clean environmental conditions, to high standards of quality control which meet the requirements of ISO 9001. All cartridges are integrity tested prior to despatch to comply with the increasingly demanding criteria for ultra-pure systems. Chemifil cartridges are available in either a clean condition, or ultra-clean rinsed by pulse flushing with 18MΩ.cm water to give rapid resistivity recovery rates. As a safeguard, all Chemifil cartridges are individually and batch identified, allowing customers to maintain their own process records.

## Steam Sterilisation

Users of Chemifil cartridges may be steam sterilised 'in-line' or autoclaved repeatedly at temperatures up to 136°C (277°F). Following steam sterilisation cartridges may be integrity tested 'in-situ' by Diffusion Flow Testing or most accepted test methods. Details of Integrity Test Procedures and Certificates of Conformity are available from Microfiltrex on request.

## Range

Chemifil membrane cartridges are available in single or multiple module units of 10, 20, 30 and 40 inches, and in a choice of two microbial removal ratings: 0.1 and 0.2 micron. Designed for both Microfiltrex hardware and as direct replacements for existing cartridges, polypropylene membrane cartridges are available from Microfiltrex with a comprehensive range of end fittings to suit most hardware installations without modification. Each cartridge is supplied fitted with all necessary seals or O-rings, to a specification compatible with the fluid being filtered.

## Specifications

### Materials of Manufacture

Filter Medium	Polypropylene
Medium Support	Polypropylene
Irrigation Mesh	Polypropylene
Inner Core	Polypropylene
Outer Support	Polypropylene
End fittings	Polypropylene
Sealing	Fusion Bonding

### Cartridge Dimensions (Nominal)

Diameter:	70mm	(2.8")
Length: 1 Module (short)	125mm	(5")
1 Module	250mm	(10")
2 Modules	510mm	(20")
3 Modules	860mm	(30")
4 Modules	1020mm	(40")

### Effective Filtration Area

<i>Absolute Microbial Rating</i>	<i>EFA (Each 250mm Module)</i>
0.1 micron	0.7m <sup>2</sup> (7.5ft <sup>2</sup> )
0.2 micron	0.7m <sup>2</sup> (7.5ft <sup>2</sup> )

### Cartridge Treatment

Standard	Cleaned and flushed, without further treatment
Rinsed	Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

### Gaskets and O-rings

Ethylene Propylene Rubber, PTFE Encapsulated, Silicone, Viton or Nitrile.

### Maximum Differential Pressure

#### Normal Flow Direction at:

20°C (68°F)	6.0 bar (87lb/in <sup>2</sup> )
80°C (176°F)	4.0 bar (57lb/in <sup>2</sup> )
100°C (212°F)	3.0 bar (43lb/in <sup>2</sup> )
120°C (248°F)	2.0 bar (29lb/in <sup>2</sup> )
125°C (257°F)	1.5 bar (22lb/in <sup>2</sup> )

#### Reverse Flow Direction at:

20°C (68°F)	2.1 bar (30lb/in <sup>2</sup> )
80°C (176°F)	1.0 bar (15lb/in <sup>2</sup> )
100°C (212°F)	0.5 bar (7lb/in <sup>2</sup> )

### Operating Temperature

80°C (176°F) maximum continuous

## Sterilisation

Autoclave and multiple In-line Steam

## Extractables

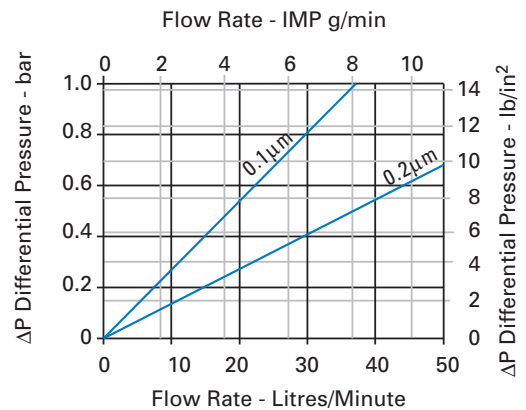
Minimal total extractables

## Integrity Testing

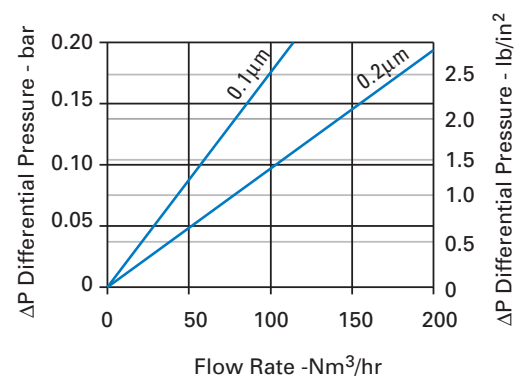
All cartridges are integrity tested prior to despatch

## Test Conditions

Typical Clean Water Flow Rate - Based on a 250mm (10") single module cartridge.

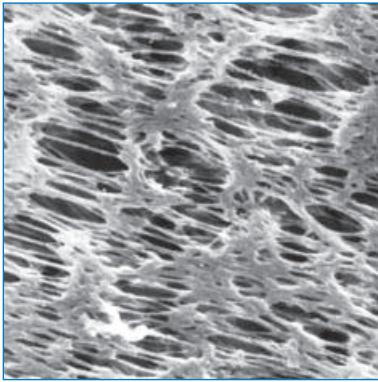


Typical Clean Gas Flow Rate - Based on a 250mm (10") single module cartridge



*Note: Differential pressures for liquids other than water can be estimated by multiplying the indicated differential pressure by the fluid viscosity in centipoise.*





***Chemifil Polypropylene  
Membrane Media (x5000)***

## Applications

Chemifil polypropylene membrane cartridges are a response to the demanding requirements of high technology process industries, for increasingly high standards of filtration. Designed for the removal of sub-micron organic and inorganic particulate matter, the Chemifil range provides users of microfiltration systems with cartridges down to a microbial rating of 0.1 micron. Based upon a highly chemically resistant hydrophobic membrane, Chemifil cartridges are suitable for a wide range of applications in the chemical, electronics, and pharmaceutical industries.

- The microfiltration of aggressive process acids and alkalis including etchants, to remove contaminants derived from both supply sources and process equipment, and those created during processing.
- The microfiltration of photoresists, developers and solvents, where the chemical characteristics of the solution render them susceptible to contamination and precipitation during manufacture, storage and processing.
- The supply of process gases free of water and particulate matter.
- The sterile venting of pharmaceutical and fermentation processes.

## Chemical Compatibility

Care must be taken to ensure that the cartridge and seals are chemically compatible with the application. It should be recognised that susceptibility to chemical attack is greatest at the extremes of the pH scale, and the degree varies considerably between solutions. Furthermore, susceptibility to chemical attack varies according to the duration of exposure and operating temperature.

## Technical Support

Microfiltrex has a team of laboratory and sales staff capable of assisting customers with the design of filtration systems and the selection of cartridges for existing installations.



*A Division of the Porvair Filtration Group*

1 Concorde Close, Segensworth, Fareham, Hampshire PO15 5RT UK

**Tel:** +44 (0)1489 864330

**Fax:** +44 (0)1489 864399

**Email:** [info@porvairfiltration.com](mailto:info@porvairfiltration.com)

**Web:** [www.porvairfiltration.com](http://www.porvairfiltration.com)



ISO 9001:2000  
FM 00374

2511M(GB)-0508

**Ihr zuständiger Distributor:**



**WM consult & sales**  
GmbH + Co. KG

**Heinrich – Böll – Str. 10  
D - 52372 Kreuzau**

**Tel.** 0049 – 2422 - 902609

**Fax** 0049 – 2422 - 901465

**E-mail** [info@wmc-s.com](mailto:info@wmc-s.com)

**Web** [www.wmc-s.com](http://www.wmc-s.com)

*The company reserves the right to change specifications without notice.  
Freedom from patent restrictions must not be assumed.*