



Pyrogard™ D

Point-Of-Use Ultrafilter

The Pyrogard D is a disposable ultrafiltration cartridge that produces pyrogen and RNase-free ultrapure water, for a limited time period of 30 days, when installed for the following Millipore Type I water purification systems:

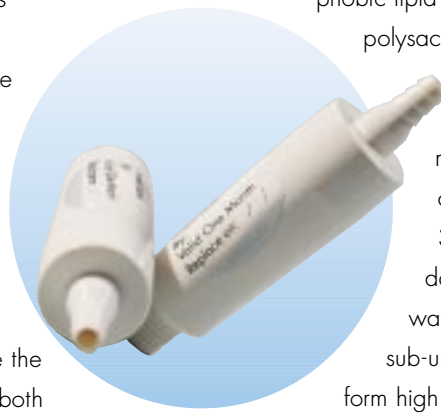
- *Milli-Q® Systems*
- *Direct-Q™ Systems*
- *Simplicity™ Systems*
- *Synergy™ Systems*

The cartridge is made of ultrafiltration hollow fibers inside a white ABS housing. The ultrafiltration membrane is designed to optimize the flow rate and reject both pyrogens and RNases. The manufacturing processes employed and materials of construction used are designed to minimize ionic and organic (TOC, Endocrine disruptors) contamination of the ultrapure water.

Pyrogen removal

The most common pyrogens are endotoxins i.e. lipopolysaccharides (LPS) from the walls of Gram negative bacteria. The LPS have two major parts: a hydrophilic polysaccharide chain with antigenic regions, and a hydrophobic lipid group. As the

polysaccharide chain is variable in length, the LPS molecular weight can vary from 3,000 to 25,000 dalton. In ultrapure water, the LPS sub-units aggregate to form high molecular weight structures that can be removed by ultrafiltration membranes with cut off below 20,000 dalton.

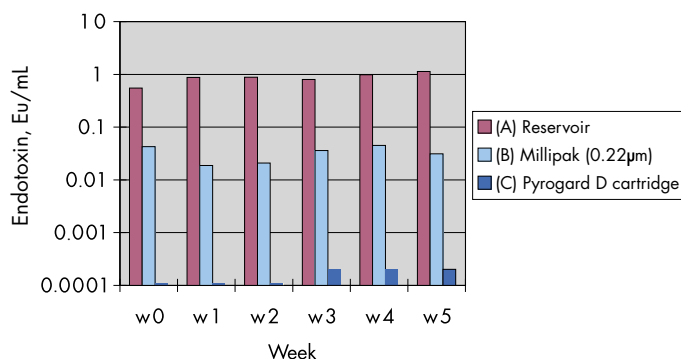


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Pyrogard D ultrafiltration cartridge validation

Pyrogens can be removed from water and aqueous solutions by ultrafiltration. Experiments carried out in Millipore R&D laboratories demonstrated that the Pyrogard D ultrafiltration cartridge has a Log Reduction Value (LRV) ≥ 5 for pyrogen concentrations between 2 and 22,000 Eu/mL. Additional tests performed with a Milli-Q Academic system fed by Elix® system water demonstrated that the Pyrogard D cartridge can be used to produce pyrogen-free water for up to 30 days.



The graph shows the evolution of the endotoxin concentration over 5 weeks: (A) in a reservoir feeding the Milli-Q system; (B) at the outlet of a Milli-Q system with a Millipak® 0.22µm final filter; and (C) at the outlet of a Milli-Q system with a Pyrogard D final ultrafilter.

RNase removal

RNA digestion tests followed by PAGE electrophoresis have shown that Pyrogard D cartridges can remove RNases from water as efficiently as DEPC treatment.

Removal of Bacteria and Particulates

When the filter outlet is located in a clean environment, such as a laminar flow hood, the Pyrogard D final filter allows the production of bacteria free water (less than 1 cfu/100 mL).

Pyrogard D cartridge is easily installed on ultrapure water systems

The Pyrogard D ultrafiltration cartridge can be adapted in less than 5 minutes to all Millipore Type 1 Water Purification Systems. It fits directly onto the outlet of Simplicity systems, and requires an adapter to connect to Milli-Q, Direct-Q and Synergy systems. The typical flow rate from a Pyrogard D cartridge is 600 mL/min on a Milli-Q system and 200 mL/min on a Simplicity water purification system.

Certificate of Quality

Each Pyrogard D cartridge has been individually tested for pyrogen removal, flow rate and integrity. A Certificate of Quality enclosed with every Pyrogard D cartridge box warrants that the product conforms to specifications and is produced in an ISO 9001 Quality Assurance environment.

Ordering information

Description	Catalogue Number
Box of 2 Pyrogard D ultrafiltration cartridges (13,000 NMWL), delivered with self-adhesive labels, Certificate of Quality and multilingual Operation Manual	CDUF 000 D2
Pyrogard D cartridge connector to Milli-Q, Direct-Q and Synergy Ultrapure Water Systems	PYRO CNT 01

To Place an Order or Receive Technical Assistance

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In the U.S., Canada and Puerto Rico, fax orders
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