



Graver Technologies

FILTRATION | SEPARATION | PURIFICATION



Citadel® Series Filter Cartridges

*100% integrity tested to ensure
performance standards*

Product Specifications

Media: PTFE Membrane

Inner core, end caps, cage: PFA

Support layers:

FEP, Expanded PTFE

Gaskets/O-Rings:

Teflon Encapsulated Viton, FFKM

O-Ring Insert: PBT

Micron ratings:

0.05, 0.1, 0.2, 0.45, 1, 10 μm

Dimensions

Nominal lengths:

10" 20" 30" 40"

25.4 50.8 76.2 101.6 cm

Outside diameter: 2.7" (6.9 cm)

Inside diameter: 1.0" (2.54 cm)

Surface area: 7.9 ft² (0.71 m²)
per 10-inch

Operating Parameters

Maximum differential pressure:

80 psid (5.5 bar) @ 24°C (75°F)

55 psid (3.8 bar) @ 75°C (167°F)

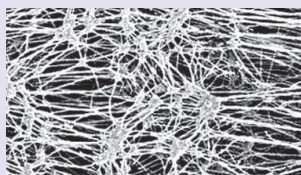
30 psid (2.0 bar) @ 125°C (257°F)

15 psid (1.0 bar) @ 150°C (300°F)

Maximum reverse pressure:

50 psid (3.4 bar) @ 24°C (75°F)

15 psid (1.0 bar) @ 121°C (250°F)



ALL-FLUOROPOLYMER CARTRIDGE FILTERS FOR AGGRESSIVE APPLICATIONS

Citadel pleated membrane cartridges feature a PTFE membrane and PFA structural components to provide excellent chemical and temperature resistance for aggressive chemical applications such as etchers, strippers, cleaners and bulk chemicals. The all-fluoropolymer construction provides for the highest level of fluid purity and will exhibit rapid rinse-up to 18 M Ω -cm resistivity and single digit ppb levels of TOC. Citadel filter cartridges are produced and manufactured in an ISO cleanroom and are 100% integrity tested to ensure performance standards.

FEATURES & BENEFITS

- Manufactured, flushed, tested and packaged in an ISO Class 7 Cleanroom Environment
- Filters are flushed with 18 M Ω -cm DI water to ensure low extractables and low particle shedding
- 100% integrity tested to provide reliable performance
- Resistivity rinse-up to 18 M Ω -cm and single digit ppb TOC levels with minimal throughput
- Pore size ratings from 0.05 to 10 micron to meet a broad range of applications
- Wet-Pack option available to eliminate the requirement for solvent pre-wetting in aqueous applications

CERTIFICATIONS

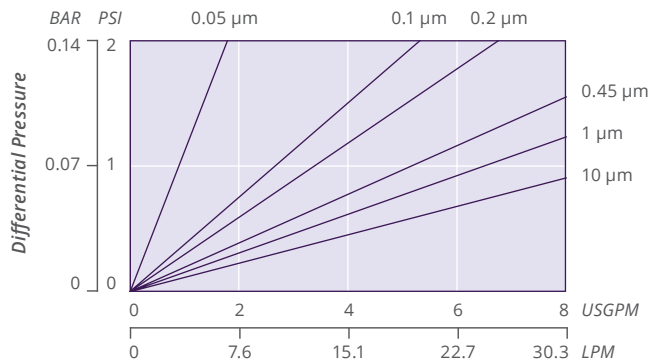
- USP Class VI: Meets USP Class VI Biological Test for Plastics
- FDA Listed Materials: All materials comply with FDA Title 21 of the Code of Federal Regulations Sections 174.5 and 177.1550 as applicable for food and beverage contact.
- European Directive for Food Contact: European Regulation No. 1935/2004 and European Regulation 10/2011: Tested for migration behavior and is suitable for contact with all kinds of foodstuffs with minimal rinse-up. Data available upon request.

CITADEL NOMENCLATURE INFORMATION

Filter Type	Retention Rating (microns)		Nominal Length (inches)	End Configuration	Gasket or O-Ring	Option
Citadel Series Filters	0.05	0.45	-10	P2 226/Flat Single Open End	C FFKM	-W Pre-Wet
	0.1	1	-20	P3 222/Flat Single Open End	T Teflon encap.	
	0.2	10	-30 -40		Viton (Standard)	
Example: CTL 0.05-20P3T-W						
CTL	0.05		-20	P3	T	-W

CITADEL FLOW RATE

Typical Flow Rate Clean Water at Ambient Temperature
(per 10" cartridge)



RINSE-UP VOLUMES

Resistivity rinse-up to 18 MΩ-cm	< 5 liters
Particle cleanliness	< 10 particles/mL > 0.1 µm
Extractable levels	< 25 ppb total in 5% HCl

INTEGRITY TEST SPECIFICATIONS

Maximum Diffusive Air Flow (per 10-inch cartridge) values for Citadel filters wet with 60/40 IPA/water:

Pore Size	Specification
0.05 µm	≤ 90 cc/min @ 22 psig (1.5 bar)
0.1 µm	≤ 50 cc/min @ 18 psig (1.2 bar)
0.2 µm	≤ 50 cc/min @ 12 psig (0.8 bar)
0.45 µm	≤ 50 cc/min @ 5 psig (0.34 bar)
1 µm	≤ 50 cc/min @ 3 psig (0.2 bar)
10 µm	N/A

FOR MORE INFORMATION

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