



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:

Chemraz®, Kalrez®,
Teflon Encapsulated Viton

Micron ratings:

0.05, 0.1, 0.2, 0.45, 1 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 MΩ-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

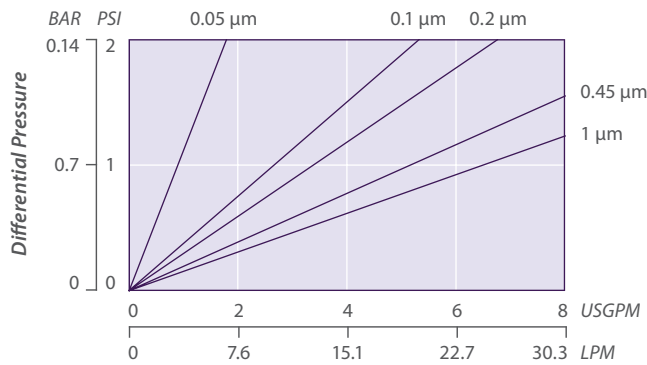
- Manufactured, flushed, tested and packaged in an ISO Class 7 Cleanroom Environment
- Filters are flushed with 18 MΩ-cm DI water to ensure low extractables and low particle shedding
- 100% integrity tested to provide reliable performance
- Resistivity rinse-up to 18 MΩ-cm and single digit ppb TOC levels with minimal throughput
- Pore size ratings from 0.05 to 1 micron to meet a broad range of applications
- Wet-Pack option available to eliminate the requirement for solvent pre-wetting in aqueous applications

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 | P3 222/Flat Single Open End | C Chemraz | -W Pre-Wet |
| | 0.1 | 1 | | K Kalrez | |
| | 0.2 | | | T Teflon encap. | |
| | | | | 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) |

FOR MORE INFORMATION

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