Series e

AET/AETi

[PTFE media – Hydrophobic/Hydrophilic]

- Proprietary, Binder-free, Nonwoven PTFE Support Material; Low Extractables and Migration-free
- ECTFE (Halar) componentry
- 100% Integrity Testable
- Available in Retention Rating of 0.05, 0.1, 0.2, 0.45 and 1µm Absolute (Beta Ratio of 10,000, >99.9% retention rating by standard latex bead challenge)
- Vacuum Packaged in a Certified Clean Room and Pre-flushed with Ultrapure, Pyrogen-free 18Megaohm Water.
- Hydrophilic AETi doesn't require pre-wetting, without an IPA prewetting requirement, these filters prevent alcohol/chemical interaction, avoid potential sources of contamination, and eliminate the cost and inconvenience of hazardous waste disposal

Applications & Industries

Semiconductor

- ❑ Facilities – CDA & UPW
- ❑ Vacuum Processes
- ❑ Photolithography
- ❑ Plating
- ❑ Premium Graphite
- ❑ Specialty Coatings
- ❑ Recirculating Nickel Plating
- ❑ Recirculating Water/Alkaline soaps
- ❑ Wet Etch and Clean

Flat Panel Display

- ❑ Cell Process
- ❑ Color Filter
- ❑ Facilities – CDA & UPW
- ❑ Photolithography
- ❑ Flat Panel Display Handling
- ❑ Thin Film Transistors
- ❑ Wet Etch and Clean

Data Storage

- ❑ Hard Disk Drive
- ❑ Hard Disk Media
- ❑ Recirculationg Nickel Plating
- ❑ CMP
- ❑ Substrates
- ❑ Facilities - CDA/UPW

UPW System

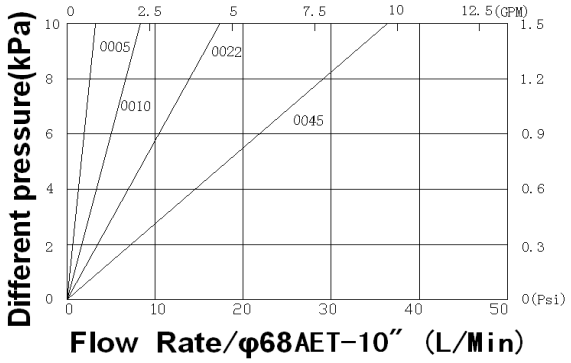
- ❑ Ozonated water
- ❑ Hot (>80°C)

Typical Applications compatible with PTFE Media

Acids
Acetic Acid (glacial)
Cerium ammonium Nitrate
HCl Hydrochloric Acid
HF Hydrofluoric Acid
HNO_3 Nitric Acid (fuming)*
HNO_3 Nitric Acid
H_2O_2 Hydrogen Peroxide
H_3PO_4 Phosphoric Acid*
H_2SO_4 Sulfuric Acid

Bases
KOH Potassium Hydroxide
NaOH Sodium Hydroxide
NH_4OH Ammonium Hydroxide

Mixed Acids and Bases
$HC1+H_2O_2$
$HF+Acetic\ Acid+HNO_3$
$HF+H_3PO_4+H_2O$
HF+NH4 Buffered Oxide Etch
$HNO_3+HF+H_20(50:1:20)$
$H_3PO_4+HNO_3+Acetic\ Acid+H_2O$
$H_2SO_4+H_2O_2$
KOH+IPA
$NH_4+H_2O_2$
$NiSO_4•6H_2O+NaH_2PO_2•H_2O$ + Citric acid +NaAc+SiO_2



Series e

Product Specifications

Materials of constructions:

- ✓ Membrane: hydrophobic/hydrophilic PTFE
- ✓ Membrane Support/Drainage: Halar (ECTFE)
- ✓ Structural Components: Halar (ECTFE)
- ✓ Seal Material: various
- ✓ Sealing Method: thermal welding

Surface Area (10" cartridge):

- ✓ Minimum 7.0 ft^2 (0.65 m^2)

Integrity Test:

Bubble Point (Using N2 and a membrane wet with 100% IPA at 73℉ [23℃]):

- ✓ 0.05µm: > 50 psi (3.4 bar)
- ✓ 0.1µm: > 24 psi (1.7 bar)
- ✓ 0.2µm: > 16 psi (1.1 bar)
- ✓ 0.45µm: > 6 psi (0.4 bar)
- ✓ 1µm: > 3 psi (0.2 bar)

Dimension:

- ✓ Outside Diameter: 2.5" (70 mm) [nominal]
- ✓ Lengths: 2-30 in (10-76 cm)

Recommended Operating Conditions:

■ Maximum Temperature:

- ✓ 230℉ (160℃) at 20psi ΔP (1.4 bar)

■ Maximum Differential Pressure:

Forward:

- ✓ 100psid (6.9bar) at 122℉(50℃)

Reverse:

- ✓ 30 psi (2.07 bar) at 77℉ (25℃)

Performance Specifications

Quality Standard

- ✓ each cartridge is pre-flushed with pulse UHP ozonated water and monitored downstream for TOC and particle count.
- ✓ TOC recovery within 5ppb of feed without additional rinse-up Resistivity recovery within 0.2megaohm-cm of feed after 12gal at 1gpm
- ✓ Less than 25ppb of metals contribution in 10% HNO_3 for 24hours static soak.

Typical flow factor (for 68mm dia filter cartridge)

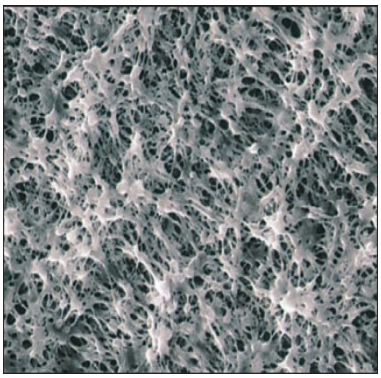
Pore Size (µm)	GPM@1psid	LPM@1bar	PSID/1gpm	BAR/1lpm
0.05	2.0	110	0.50	0.009
0.1	3.3	181	0.30	0.005
0.2	5.0	274	0.20	0.004
0.45	7.1	389	0.14	0.003
1.0	8.3	455	0.12	0.003

Ordering Information	Micron rating Selections:		Endcaps :	Nominal Length	Seal Material
AET (Hydrophobic PTFE)					
AETi (Hydrophilic PTFE)					
	0005	0.05µm	DO – D.O.E	05 – 5"	P – PFA/Viton
	0010	0.10µm	DTC – 222 o'ring/Flat	10 – 10"	
	0020	0.20µm	TF – 222 o'ring/Fin	20 – 20"	
	0045	0.45µm	SF – 226 o'ring/Fin	30 – 30"	
	0100	1.0µm		40 – 40"	
	0500	5.0µm			
	1000	10.0µm			

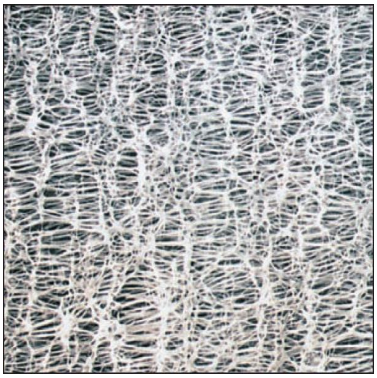
Why the 'i'?

Because is *Hydrophilic PTFE*

- Maximum Temperature & chemical resistance, no changes on performance VS hydrophobic PTFE filters
- Inherently hydrophobic, adopted latest membrane casting technology changing the characteristics to hydrophilic.
- High flow rates with minimal aqueous extractables (<0.3 wt%)
- Optically clear when wet with water
- No pre-wetting compared to hydrophobic PTFE.
- No IPA contamination to the system and IPA disposable cost.
- Resolving Hydrophobic PTFE's weak surface energy when is in contact with chemicals of higher surface tension fluid, normally resulting to bad pre-wetting.
- Hydrophobic PTFE 's pores tend to de-wet often when is in contact with higher tension fluid like water or sulfuric acid, displacing the liquid out the pores and allowing the pores to be filled with gas, gas eventually block out the pores resulting to slower flow and higher differential pressure.
- Hydrophilic PTFE pores are wet, it remains wet and will not allow undissolved gases passing through the pores.
- Overcoming gas-locking problem often faced by hydrophobic PTFE filters.



Hydrophilic PTFE SEM



Hydrophobic PTFE SEM

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