

Method 29 - Multi-Metals Blank Filters

GF-3QR

GF-3Q

GF-4QR

GF-4Q

		Analyzed value for Micro Filtration Systems	Analyzed value for Pall Gelman Sciences (Pallflex)	Analyzed value for Whatman (QMA)	Lab Blank
		Lot #61130208	Lot #53323	Lot #550442	
		(µg)	(µg)	(µg)	
Metal					
Antimony	Sb	< 0.5	1	< 0.5	< 0.5
Arsenic	As	< 0.5	< 0.5	< 0.5	< 0.5
Barium	Ba	14	9	134	6
Beryllium	Be	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	< 0.01	< 0.01	< 0.01	< 0.01
Chromium	Cr	1.4	1.8	2.5	< 0.5
Cobalt	Co	< 1.5	< 1.5	< 1.5	< 1.5
Copper	Cu	< 2	< 2	< 2	< 2
Lead	Pb	1.4	0.4	1	< 0.3
Manganese	Mn	< 1	1	2	< 1
Mercury	Hg	< 0.4	< 0.4	< 0.4	< 0.4
Nickel	Ni	< 0.5	0.7	< 0.5	< 0.5
Phosphorus	P	< 30	< 30	114	< 30
Selenium	Se	< 0.3	< 0.3	< 0.3	< 0.3
Silver	Ag	< 0.02	< 0.02	< 0.02	< 0.02
Thallium	Tl	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	Zn	14	4	15	2

Analysis notes: Three filters combined & extracted into one solution and analyzed. The answer was divided by 3 for the results shown here.
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Whatman Inc.

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EXTRACTABLE METAL CONCENTRATION

Element	Grade 934AH (ppm)
COPPER	3.4
IRON	1000
LEAD	25
SODIUM	4,460
MAGNESIUM	8,500
CALCIUM	67,000
CHROMIUM	2.0
ZINC	4
BARIUM	320
CHLORIDE	14

The above data represents typical values and not a product specification. Extractable values can vary considerably, but will generally remain within the same orders or magnitude.

3/98



Registered in USA No. 106194
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Clifton, New Jersey 07014

Pallflex filters eliminate the humidity variable in air sampling procedures.

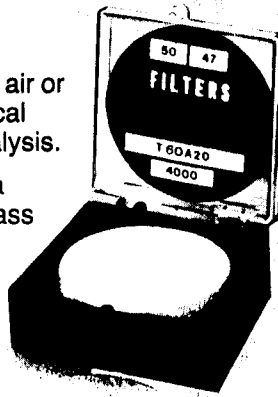
FIBERFILM T60A20

Experiments have shown that moisture variations in air or gases during air sampling procedures cause chemical reactions that mask the true constituents during analysis.

Not so with the Pallflex T60A20 filter. Fabricated of a unique combination of heat-resistant borosilicate glass fibers and moisture-resistant fluorocarbon (TFE) coating, the Pallflex T60A20 filter resists moisture uptake and moisture-gas reactions and lets you eliminate the lengthy desiccation required when using hygroscopic glass fiber filters.

Physical Properties Include:

- Usable in high temperature and hot gas environments — (Not possible with cellulose or organic fiber filters).
- Low Nominal Air Resistance.
- High Efficiency — over 99% on half micron particles.
- Smooth Surface.
- Cream-white color, nominal 7 mils thick, 3.5 g/SF. Air resistance by Gurley Densometer @ 100cc/sq. in. — 2 sec.



Pallflex T60A20 filters' unique properties and strict manufacturing standards make them ideally suited for a broad range of air sampling applications. In fact, this filter was used in an Environmental Protection Agency study of light-duty diesel engine emissions. The EPA study set new particulate emission standards, and specified fluorocarbon coated glass fiber filters as the preferred medium for all future emission sampling.

Discover why the Pallflex T60A20 filter should be used for your air sampling application, too. Pallflex application specialists stand ready to help you eliminate the humidity variable from your procedure.

Filters available in all standard sizes such as 25mm, 47mm, 51mm, 8" x 10". Other common sizes and specials such as 20" x 20" and even 40" x 40", also available, including filters to fit impact samplers.

RELATIVE AIR RESISTANCE "WC @ 28 FPM VELOCITY		
TISSUQUARTZ 2500QAO = 4.5	FIBERFILM T60A20 = 2.0	EMFAB TX40HI75 = 80
TISSUGLAS 2500AO = 4.5	EMFAB TX40HI20WW = 5.0	EMFAB TX40HI45 = 12

TISSUQUARTZ 2500QAS

For superior chemical purity and very high temperature use, Tissuequartz filters are made without any binder from pure Quartz fibers under ultra clean process conditions. Available in neutral pH, or alkaline or acid wash finishes. May be used at up to 2000°F.

Properties: Nominal 25 mils, 6 gms/S.F. Filter Efficiency: 99.999% removal of 0.5 micron particles, 99.99% removal of 0.3 - 0.05 micron particles at standard test conditions. Removal efficiency will vary somewhat at various face velocities and test time. Air resistance by Densometer at 100 cc/sq. inch @ 4.8" WC = 3 seconds ± 1.

Typical reported chemical composition Tissuequartz 2500QAS

Elements in micrograms per gram (PPM).

Al = 190	As = <2.0	Cu = <1.6	Ni = <.096
Ca = 110	Cd = <.04	Pb = <.29	Sn = <.18
Fe = <19	Cr = <2.2	Mn = <.18	V = <.18
Be = <.016	Co = <.016	Mo = <.255	Zn = <6.0

Tissuequartz variations in finishing and physical properties

2500QAO - at 6-7 pH, soft & flexible (400 gms/inch tensile)
~~2500QAT~~ - additional heat treatment for reduction of trace organics.

NEW: 2500QAT-UP Ultra Pure soft water processing:

Micrograms/47mmdisc (.195 g)

Chloride = 0.33 ± 0.08 Sulfite = 0.045 ± 0.28

Sulfate = 1.0 ± 0.2 Ammonium = 0.6 ± 0.2 NO₃ = 0.072

Surface alkalinity between 6.5-7.5 pH in boiled water extract.

EMFAB TX40HI20WW

APPLICATION: For critical aerosol sampling tests where purity and non-hygroscopic properties of Teflon are needed in Diesel exhaust and stack emission control.

MATERIALS OF CONSTRUCTION:

The filter medium layer is composed of pure Borosilicate Micro-glass fibers. Extra fine woven glass cloth is added for reinforcement, and may be noticed as a fabric pattern on one side.

These are bonded together with Teflon* which is cured at over 700°F. simultaneously by Heat Cleaning. In addition, the material is then flushed a number of times with deionized water to remove any water-soluble residue.

APPEARANCE:

Normal color varies from white to light tan. There may be a wavy and irregular weave pattern or a tan streak of line color from weaving process on the cloth side which is normal, and not a functional defect. Appearance of a ridge is also normal.

PROPERTIES:

Thickness ranges between 0.0050" - 0.0095"
 Weight average is 5 grams/sq. ft. ± 1 gram.

Flow resistance may be measured with Gurley densometer at 100cc through 0.10 sq. inches orifice for results of 15 seconds.
 MAY BE FOLDED FOR WEIGHING AND TRANSPORT.

Filtration Rating: Efficiency by DOP (0.3 microns) is + 99% at 320 cm/sec.

Dimensions: High Vol. Filters are 8" x 10" (± 3/32), Discs 47mm (± .010) in diameter. Other sizes to 40" x 40" are available.

Temperature resistance: Up to 600° F. with short exposure time.
 Up to 800° F. with some loss of TFE after long exposure.