

Statement of Performance

Furon HP PFA 400 Cleanliness in Ultrapure Water

Furon HP PFA 400 1/2-inch tubing has been tested in accordance with SEMI F57-0622 specification for Polymer Materials and Components used in Ultrapure Water and Liquid Chemical Distribution Systems at an independent test lab¹.

Test Conditions

Saint-Gobain produced tubing using PFA pellets. The sample was double bagged for cleanliness assurance and transport to testing facility.

The tubing used for SEMI F57 testing was prepared in accordance with SEMI F40 which is the practice for preparing liquid chemical distribution components for chemical testing. The SEMI F57 Standard provides recommendations for the use of polymer materials and components used in Ultra-High Purity liquid chemical distribution systems (LCDS). Such distribution systems covered in this Specification include bulk supply, facility distribution, and process equipment applications.

The tubing was tested using leach analysis per SEMI F57-0120. It was filled and leached per SEMI F40-0621: Ultrapure Water (UPW) leach at 85°C for 7 days including preclean except pellet (no preclean).

Summary

Furon HP PFA 400 tubing was tested for Ultrapure Water and Liquid Chemical Distribution Systems per SEMI F57-0622 and passed for trace metals, anions and TOC. Results found that all elements tested were below spec or the detection limit.

References

¹ Balazs NanoAnalysis Air Liquide US L.P. 46409 Landing Parkway

Table 2: SEMI F57 Anion and TOC Extraction Data

	Detection Limit (µg/m ²)	Results (µg/m ²)	F57-0622 Spec (µg/m ²)
TOC	40	740	40,000
Fluoride	2	2000	20,000
Chloride	5	*	100
Nitrite	5	*	100
Bromide	10	*	100
Nitrate	10	*	100
Phosphate	10	*	100
Sulfate	10	*	100
Ammonium	10	*	100
* Indicates below the detection limit		≤ Spec	

Table 1: SEMI F57 Metal Extraction Data

	Detection Limit (µg/m ²)	Results (µg/m ²)	F57-0622 Spec (µg/m ²)
Aluminum	0.1	*	5
Antimony	0.05	*	2
Arsenic	0.1	*	2
Barium	0.02	*	15
Bismuth	0.1	*	NS
Boron	1	15	30
Cadmium	0.07	*	2
Calcium	0.1	1.5	10
Chromium	0.01	0.02	1
Cobalt	0.05	*	NS
Copper	0.1	*	10
Gallium	0.1	*	NS
Germanium	0.1	*	NS
Iron	0.2	*	5
Lead	0.01	*	1
Lithium	0.07	*	2
Magnesium	0.05	*	2
Manganese	0.07	*	5
Mercury	0.1	*	NS
Molybdenum	0.1	0.3	NS
Nickel	0.02	0.54	1
Potassium	0.2	*	10
Silver	0.07	*	NS
Sodium	0.1	*	10
Strontium	0.02	*	0.5
Tin	0.05	*	2
Titanium	0.1	*	2
Tungsten	0.05	*	NS
Vanadium	0.07	*	2
Zinc	0.1	*	5
* Indicates below the detection limit		≤ Spec	