

Statement of Performance

Metal Extraction from Versilon™ HP PFA 400 UC Using SEMI C90 Standards for Testing Methods and Requirements

Versilon HP PFA 400 UC tubes were tested in accordance with the SEMI C90 specification for Metallic Surface Contamination at an independent test lab¹.

Test Conditions

Saint-Gobain produced two tubes (3/8" OD x 1/4" ID) using virgin HP PFA pellets that were sourced from the two main raw material providers that supply the Semiconductor industry. Both were manufactured in a clean room, on the same equipment and with the same settings.

Two tubes (3/8" OD x 1/4" ID) were produced in our clean room on the same equipment with the same setting. Each of them was produced with Virgin HP PFA pellets containing less than 5 PPb of Iron (as required by the standard) and sourced from the two main raw material providers servicing the semiconductor industry.

The prepared samples were leached with 5% HNO₃ for 24 hours at ambient temperature in accordance with C90. A leach blank was also prepared in this manner for the testing. Values for each result were calculated by subtracting the blank and normalizing to the µg/m² of the surface of the leaching area.

Summary

Versilon HP PFA 400 UC tubing, made from PFA pellets sourced from two raw material providers that serve the Semiconductor industry, was tested for Metallic Surface Contamination in agreement with the SEMI C90 requirements. Results indicated Versilon HP PFA 400 UC tubing tested within the limits of 5µg/m² of Iron and therefore is in compliance with the SEMI C90 standard.

Additionally, the combined result of the two, different raw materials underscores that Saint-Gobain's production process and production environment do not at all impact levels of contaminant that could be found on the produced tubing (or at least below the detection limit level) and emphasizes the excellent process expertise of our production site.

References

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

Results

Test	Detection limit (µg/m ²)	Value for sample A (µg/m ²)	Value for sample B (µg/m ²)
Surface Extractable Metallic Contamination			
Aluminum	0.2	0.8	0.3
Boron	2	-	-
Calcium	0.8	1.6	1.0
Chromium	0.2	0.3	3.3
Copper	0.2	4.1	-
Iron	0.8	2.5	-
Lead	0.2	-	-
Lithium	0.08	-	-
Magnesium	0.2	0.3	-
Manganese	0.2	-	-
Nickel	0.2	3.5	-
Potassium	0.8	-	-
Sodium	0.2	0.3	0.8
Tin	0.08	-	-
Titanium	0.2	0.5	-
Zinc	0.2	2.7	0.3

"-" indicates the result is below the detection limit of the test.