



High Purity Tubing General Grade Tubing



High Purity Tubing

- High Purity PFA Resin
- General Grade PFA Resin
- New UHP-FEP Resin
- General Grade FEP Resin

Features:

Made from Ultra Pure materials using state of the art production equipment

- Superior Surface Finish
- Low Extractables
- Meets ASTM D-3296

Properties

Property	Standard	FEP	PFA
Ultimate Tensile Strength	ASTMD-638	300 (73F)	6700 (73F)
Percent Elongation	-	300 (73F)	300 (73F)
Coefficient of friction	-	0.30 (Avg)	0.23 (Avg)
Flexural Modulus (psi x 10000)	ASTMD-790	90 (73F)	170 (73F)
Impact Strength (ft-lb/in) (73 F)	ASTMD-256	No break	No break
Max Operating Temperature (F)	-	400	302
Specific Gravity	ASTMD-792	2.12 - 2.17	1.70
Dielectric Strength	ASTMD-149	2000	1800
Dielectric Constant	ASTMD-150	2.03	2.50
Melt point (F)	-	582	380

Standard Wall

ID	OD	Wall Thickness	Part Number Dyneon HP Resin
1/32"	1/16"	0.015"	840410028
1/16"	1/8"	0.030"	840410030
3/16"	1/4"	0.030"	840410032
5/32"	1/4"	0.047"	840410034
5/16"	3/8"	0.030"	840410036
7/16"	1/2"	0.030"	840410038
9/16"	5/8"	0.030"	840410040
11/16"	3/4"	0.030"	840410042

Heavy Wall

ID	OD	Wall Thickness	Part Number Dyneon HP Resin
1/8"	1/4"	0.062"	840410044
1/4"	3/8"	0.062"	840410046
3/8"	1/2"	0.062"	840410048
1/2"	5/8"	0.062"	840410050
5/8"	3/4"	0.062"	840410052
3/4"	7/8"	0.062"	840410054
7/8"	1"	0.062"	840410056

High Purity Resins- Asahi/America fluoropolymer tubing designs incorporate PFA resins from Dupont. All resins meet the high purity requirements of the semiconductor and pharmaceutical industries.

Both the Dupont 450PFA resin and Dyneon PFA resins have been tested according to Semi F57 standards for component purity.

High Purity Tubing from Asahi/America is produced and packed under strict standards. Tube is capped and double bagged for clean storage and shipment. Tube can also be supplied on plastic spools, overwrapped with plastic for added protection

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The Wet Process People

Technical Data

Static Leach Data

Conducted according to SEMI F57

Element	Semi 57 Max allowable ($\mu\text{g}/\text{m}^2$)	PFA HP Tube ($\mu\text{g}/\text{m}^2$)
TOC	60,000	160
Anions		
F	60,000	1,200
Cl	3,000	4.3
NO ₂	100	-
Br	100	-
NO ₃	100	-
HPO ₄	300	-
SO ₄	300	-
Metals		
Al	10	0.8
Sb	-	-
As	-	-
Ba	15	-
Bi	-	-
B	10	6
Cd	0	-
Ca	30	1.8
Cr	1	-
Co	-	0.05
Cu	15	0.8
Ga	-	-
Ge	-	-
Fe	5	0.28
Pb	1	-
Li	2	-
Mg	5	0.5
Mn	5	-
Hg	-	-
Mo	-	-
Ni	1	0.6
K	15	-
Ag	-	-
Na	15	0.4
Sr	0.5	-
Sn	-	-
Ti	-	-
W	-	-
V	-	-
Zn	10	0.5

For Test results on all other materials offered, contact Asahi/America's Engineering Department.

Tube Extraction Results (ppb)

Element	PFA-UHP	FEP-UHP
Aluminum	0.10	0.50
Calcium	ND	ND
Chromium	0.40	ND
Copper	2.0	0.10
Iron	ND	ND
Magnesium	0.40	ND
Molybdenum	0.40	0.10
Nickel	3.10	ND
Zinc	ND	ND

Testing by Balazs Analytical Laboratories

Leaching in 70% HNO₃ for 7 days at room temperature

Tube Burst Pressure

An approximate value for burst pressure may be calculated using the following formulas:

$$P_s = S (OD/ID - 1)$$

$$S = X - YT$$

Where:

P_s = Burst Pressure, psi

S = Material Strength, psi

OD = Outside Diameter of tubing, in

ID = Inside Diameter of tubing, in

X = material constant: $X(\text{FEP}) = 1929$,

$X(\text{PFA}) = 2278$

Y = material constant : $Y(\text{FEP}) = 4.285$,

$Y(\text{PFA}) = 3.77$

T = maximum temperature, °F

* Formula is valid for Temperatures between 0 to 500 °F

Joining Technique

•Compression Style Fittings

•Flare Fittings

•All Fittings and Flare equipment available from Asahi/America, Inc.

