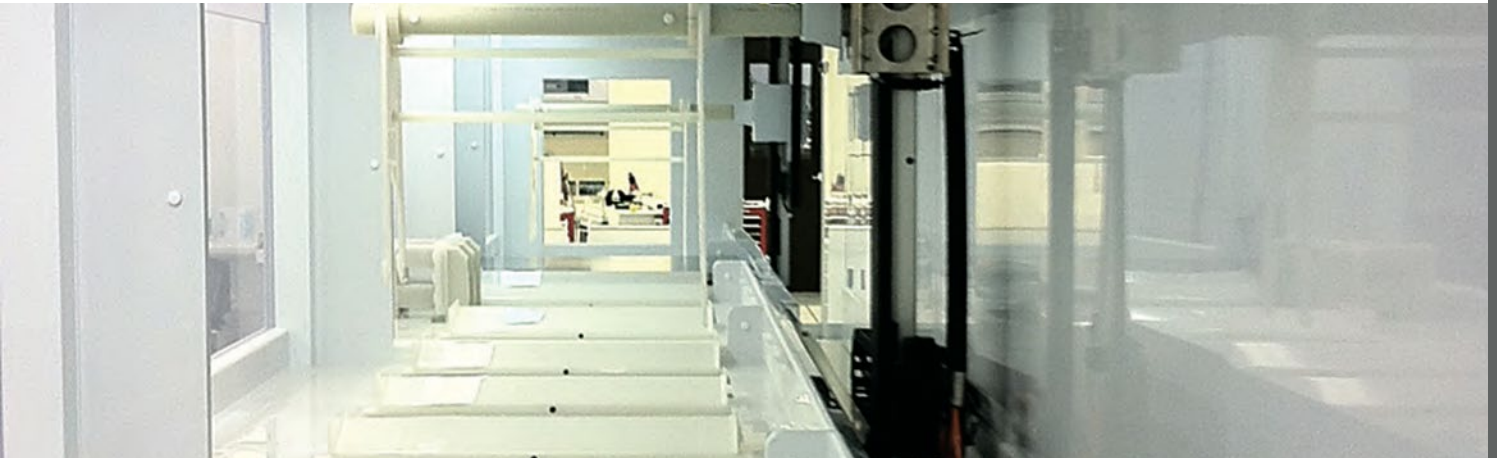


## Most Complete Line of FM 4910 Thermoplastic Sheet for the Semiconductor Industry



### FM 4910 sheet range includes:

- PFA-M, E-CTFE and PVDF
- CPVC clear tint and white
- High impact polypropylene
- High impact PVC Type I

Resists wet process acids, bases, solvents and oxidizers  
Withstands temperatures from 140 to 425 °F (60 to 218 °C)  
Meets FM 4910 and UL 94 V-0 flame test criteria

### Plus rod and welding rod:

PVDF and polypropylene rod diameters to 19.7 in. (500 mm)  
PVC Type I rod to 8.0 in. (200 mm)  
Weld rod in same resin grades as FM 4910 sheet products

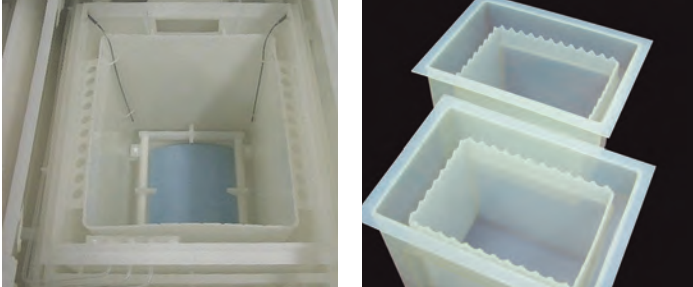
### Proven in all wet process applications:

Process tanks, vessels and components  
DI water systems  
Cabinetry and view windows  
Fume hoods, ducting



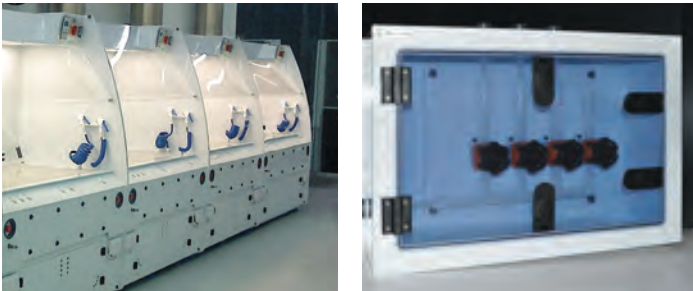
# Satisfy Semiconductor Process Applications Without Compromise

## FM 4910 fluoropolymer sheet for severe process environments in tanks, vessels and machined parts



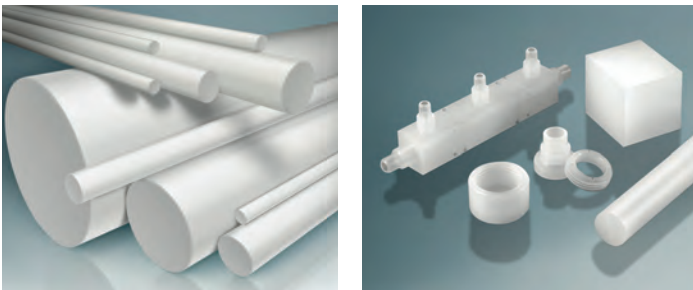
SIMONA's PVDF, E-CTFE and PFA-M fluoropolymer sheet materials provide resistance to all process chemistries up to 425 °F (218 °C). Their uniform high gloss surface repels process contaminants, and they afford consistency in fabrication. All materials including PFA-M are available 48 inches (1220 mm) wide for optimum fabrication yields.

## Exceptional impact resistance and aesthetics for cleanroom cabinetry and enclosures



For a higher level of impact resistance plus high quality appearance, SIMONA developed two unique FM 4910 listed materials: SIMONA PVC Type I CRP-1, and FRP-3 polypropylene. SIMONA's clear tinted CPVC also affords exceptional optical quality for view windows. White CPVC and standard impact PVC Type I VS-1 complete this versatile FM 4910 product range.

## Rod diameters to 19 inch (48 cm) open new applications for machined components



SIMONA now offers PVDF and polypropylene homopolymer rod up to an unprecedented 19.7 in. (500 mm) in diameter. This exceptional size range opens new applications for larger machined components in semiconductor manufacturing equipment. SIMONA's flame-rated rod products also include PVC Type I in diameters up to 8 inches (200 mm).

## Weld rod made from sheet resins, plus hybrid rod for PVDF-to-PVC welds

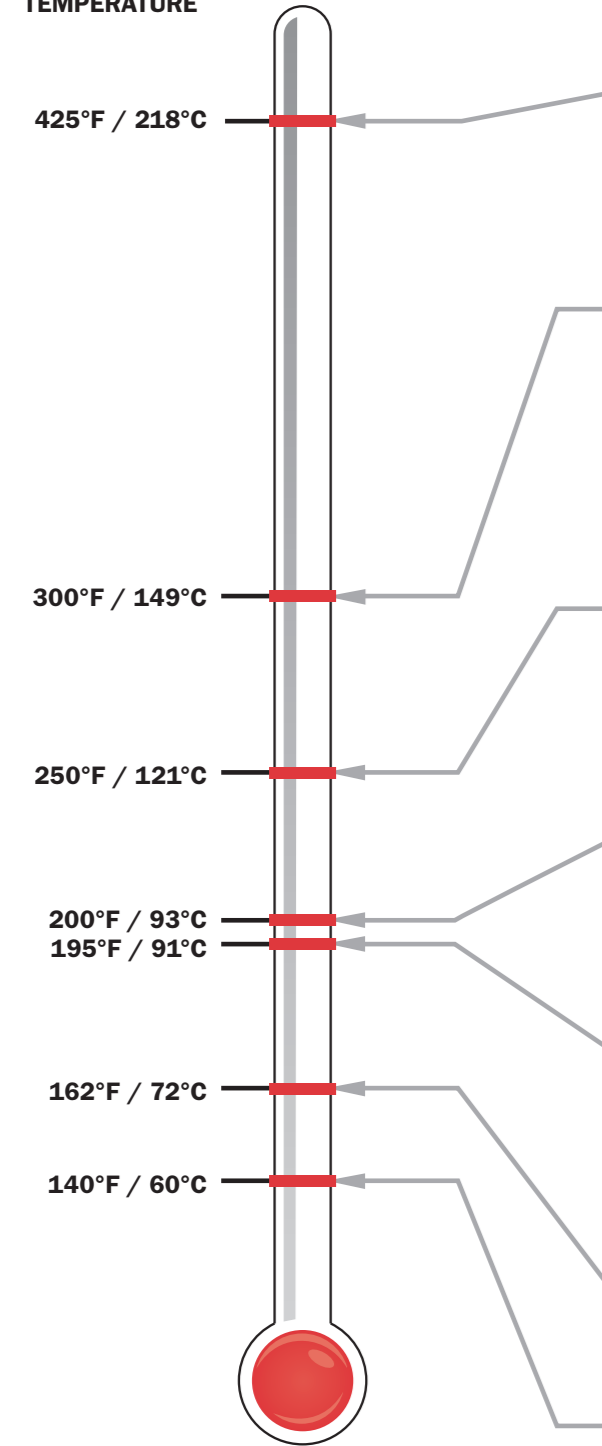


For weld integrity, SIMONA offers weld rod made from the same resin grade used to produce each of its FM 4910 sheet products. In addition, a proprietary SIMONA hybrid weld rod allows welding of PVC Type I CRP-1 to PVDF.

# Select from the Industry's Widest Range of FM 4910 Sheet, Plus Rod and Welding Rod



SERVICE TEMPERATURE



\*General guidelines only. Users are advised to test for suitability relative to specific application conditions.

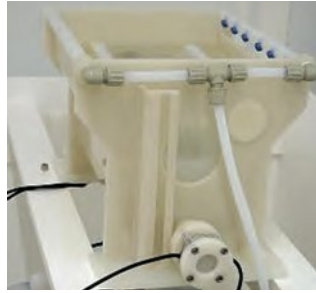
SERVICE TEMPERATURE	STRONG ACIDS*	STRONG BASES*	SOLVENTS*	STRONG OXIDIZERS*	DESCRIPTION	SHAPE/SIZE		FLAMMABILITY		PROPERTIES												
						SHEET GAUGE RANGE in. (mm)	WELDING ROD	UL 94 V-0	FM 4910	SPECIFIC GRAVITY ASTM D792	WATER ABSORPTION, % ASTM D570	TENSILE STRENGTH AT YIELD ASTM D638	ELONGATION AT BREAK, % ASTM D638	FLEXURAL MODULUS ASTM D790	NOTCHED IZOD IMPACT ASTM D256	HARDNESS, SHORE D ASTM D2240	CONTINUOUS SERVICE TEMP MAXIMUM	MELTING POINT ASTM D3418	COEFFICIENT OF EXPANSION $\times 10^{-6}$ ASTM D696	HEAT DEFLECTION TEMP @ 66 PSI (0.45 MPa) ASTM D648	HEAT DEFLECTION TEMP @ 264 PSI (1.8 MPa) ASTM 648	
425°F / 218°C	█	█	█	█	SIMONA® PFA-M SIMONA PFA-M resists all process chemistries up to 425°F (218.5)°C. Its high gloss surface repels contaminants more effectively than molded PFA products and its purity exceeds that of PVDF. The extruded 48.0 in. (1220 mm) width minimizes welds. Molded sheet is also available 1.0 in. (254 mm) thick and 23.5 in. (597 mm) square.	Extruded 0.125 - 0.500 (3.2 - 12.7) Molded 1.0 (25.4)	█	█	-	2.15	-	2,300 psi (15.9 MPa)	300	72,000 psi (496.8 MPa)	No break	57	425°F (218.5°C)	518°F (270.2°C)	9.0 in./in.,°F (16.2mm/mm,°C)	-	-	
	█	█	█	█	SIMONA® E-CTFE 901 This rigid, impact resistant material features excellent thermal and chemical resistance. It is ultra-pure, suitable for wetted parts, and a cost-effective option to fully fluorinated materials.	0.125 - 1.0 (3.2 - 25.4)	█	█	█	1.68	<0.01	4,500 psi (31.1 MPa)	255	245,000 psi (1,690.5 MPa)	No break	73	302°F (150.1°C)	468°F (242.4°C)	5.0 in./in.,°F (9 mm/mm, °C)	195°F (90.6°C)	160°F (71.2°C)	
	█	█	█	█	SIMONA® E-CTFE 902 Virtually identical to 901 in performance, the 902 grade extends the extruded thickness range up to 2.0 inches (50.8 mm).	1.0 - 2.0 (25.4 - 50.8)	█	█	Limited <sup>2</sup>	1.71	0.01	4,500 psi (31.1 MPa)	255	245,000 psi (1,690.5 MPa)	No break	73	302°F (150.1°C)	434°F (223.5°C)	5.0 in./in.,°F (9 mm/mm,°C)	195°F (90.6°C)	160°F (71.2°C)	
300°F / 149°C	█	█	█	█	SIMONA® PVDF 740 Homopolymer SIMONA PVDF 740 homopolymer sheet products are exceptionally resistant to concentrated acids and ultra-pure water even at elevated temperatures, and exhibit higher rigidity and temperature resistance than the copolymer 2850 grade.	0.125 - 2.0 (3.2 - 50.8)	█	█	█	1.78	<0.03	6,000 psi (41.4 MPa)	65	195,000 psi (1,345.5 MPa)	1.0 ft-lb/in. (53.4 J/m)	78	261°F (127.3°C)	338°F (170 °C)	7.2 in./in.,°F (13 mm/mm, °C)	284°F (140°C)	244°F (117.9°C)	
	█	█	█	█	SIMONA® PVDF 2850 Copolymer SIMONA PVDF 2850 copolymer has more impact resistance and flexibility than PVDF 740 but with similar chemical resistance, and is ideal for thermoforming.	0.250 - 2.0 (6.4 - 50.8)	█	█	-	1.78	<0.05	5,000 psi (34.5 MPa)	110	170,000 psi (1,173 MPa)	3.0 ft-lb/in. (160.2 J/m)	72	253°F (122.9°C)	316°F (157.9 °C)	8.5 in./in.,°F (15.3 mm/mm, °C)	255°F (124°C)	120°F (48.9°C)	
250°F / 121°C	█	█	█	█	SIMONA® FRP-3 Polypropylene SIMONA FRP-3 polypropylene has an unmatched 12.0 ft-lb/in. (640.8 J/m) notched Izod impact, and 400,000 psi (2,760.5 MPa) flexural modulus. It also features uniform color and resists alkaline, ultra-pure water and low acid contact, but is not recommended in concentrated acids, or aromatic, aliphatic or chlorinated solvents.	0.125 - 1.0 (3.2 - 25.4)	█	█	█	1.36	<0.01	2,600 psi (17.9 MPa)	-	400,000 psi (2,760.5 MPa)	12.0 ft-lb/in. (640.8 J/m)	68	200°F (93.4°C)	-	-	240°F (115.6°C)	-	
200°F / 93°C 195°F / 91°C	█	█	█	█	SIMONA® CPVC White For opaque applications requiring temperature resistance higher than PVC, SIMONA offers bright white CPVC sheet. Gauges to 1.0 inch (25.4 mm) are ideal for machined and fabricated parts.	0.250 - 1.0 (6.4 - 25.4)	-	█	█	1.46	0.035	7,360 psi (50.8 MPa)	-	380,000 psi (2,622 MPa)	>2.0 ft-lb/in. (>106.8 J/m)	R117	-	-	6.3 in./in.,°F (11.34 mm/mm, °C)	-	205°F (96.2°C)	
162°F / 72°C	█	█	█	█	SIMONA® CPVC Clear Clear, blue tinted SIMONA CPVC has wide acceptance for its optical quality in view windows and clear access panels in most pH 0-14 environments. It features high strength, stiffness, and scratch resistance, and its ASTM E84 flammability rating makes it an excellent choice for data center glazing.	0.118 - 0.47 (3.0 - 12.0)	-	█	█	1.55	<0.02	8,700 psi (60 MPa)	-	435,000 psi (3,001.5 MPa)	1.4 ft-lb/in. (74.8 J/m)	96	195°F (90.6°C)	-	-	-	180°F (82.3°C)	
140°F / 60°C	█	█	█	█	SIMONA® PVC-Type I CRP-1 SIMONA CRP-1 offers far higher impact strength than PVC-C and other FM 4910 PVC sheet. It performs well at typical wet bench cabinetry temperatures, and its uniform white color and gloss enhance clean-room aesthetics. It also welds faster and easier than FM 4910 listed PVC-C and PVC sheet.	0.125 - 1.0 (3.2 - 25.4)	█	█	█	1.415	< 0.01	7,500 psi (51.7 MPa)	-	485,000 psi (3,346.5 MPa)	3.0 ft-lb/in. (160.2 J/m)	84	162°F (72.3°C)	-	5.8 in./in.,°F (10.4 mm/mm, °C)	-	162°F (72.3°C)	
	█	█	█	█	SIMONA® PVC-Type I VS-1 SIMONA VS-1 sheet is an economical, standard impact grade PVC Type I that withstands service temperatures to 140 °F (60 °C) and forms and fabricates easily.	0.125 - 0.75 (3.2 - 19.0)	█	█	█	1.415	-	7,500 psi (51.7 MPa)	-	-	1.06 ft-lb/in. (56.6 J/m)	84	140°F (60°C)	-	6.0 in./in.,°F (10.8 mm/mm, °C)	-	154°F (67.8°C)	

<sup>1</sup>All tests at 73°F (22.8°C) in dry conditions unless otherwise noted.  
<sup>2</sup> Approved for limited use in thick section machined parts and deep-draw thermoformed parts.

# Typical Applications



SIMONA® PVC CRP-1: enclosure  
SIMONA® CPVC: clear windows



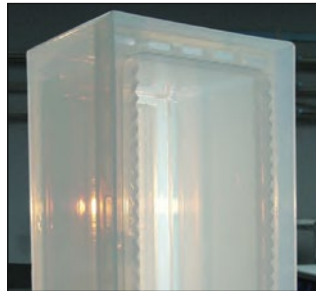
SIMONA® PVDF: Process tanks,  
components



SIMONA® PVDF, E-CTFE:  
Process tanks, components



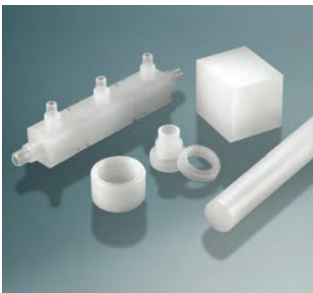
SIMONA® PP FRP-3:  
Cabinet enclosure



SIMONA® PFA-M:  
Etch tank



SIMONA® CRP-1: Valve box  
SIMONA® Clear CPVC: Door



SIMONA® PFA-M: Machined  
process components



SIMONA® PVDF:  
Chemical mixing unit



SIMONA® PFA-M:  
Process tanks

---

## **SIMONA AMERICA Industries**

101 Power Blvd.  
Archbald, PA 18403  
Phone 1 866 501 2992  
Fax 1 800 522 4857  
mail@simona-america.com  
www.simona-america.com

## **SIMONA Boltaron Inc.**

1 General Street  
Newcomerstown, OH 43832  
Phone 1 740 498 5900  
(US) 1 800 342 7444  
Fax 1 740 498 5448  
info@boltaron.com  
www.boltaron.com