



PFA Film

PFA Film/PFA Foil

ESONE PFA film is manufactured using a melt extrusion casting process from Perfluoroalkoxy (PFA) polymer resin. This film boasts the highest continuous use temperature of any melt-processable fluoropolymer film, reaching 260°C (500°F). The PFA film provides many of the performance characteristics of PTFE in a clear and transparent format, and it can be heat sealed, thermoformed, welded, metallized, or laminated to various materials.

ESONE PFA films are available in two grades

PFA GP – General Purpose

- Made from 100% virgin premium grade PFA resin with a melt flow index (MFI) range of 1.5 to 2.5.
- PFA GP is the preferred choice for dielectric applications and situations where exceptional visual clarity and perfection are essential.

PFA WF – Welding Film

- Provides significant cost savings of 30% compared to GP grade while retaining all the physical, mechanical, and thermal properties of General Purpose PFA film
- An ideal economical solution for heat sealing, welding, and other melt adhesive applications where high aesthetic standards are not required.

Specification

ESONE offers PFA films with thickness ranging from 0.012 to 0.25mm (12 to 250 um) (0.0005 inches to 0.010 inches), with a standard width of up to 1,600 mm (63 inches). Additionally, slit widths and bondable surfaces (plasma treated or chemically etched) are available upon request.

Width: Max 1,600mm (63 inches) Any slit width is available

Surface: Non-treatment, plasma treated or chemically etched

Temperature: Continuously working in temperatures ranging from -254°C to 260°C (-425 to 500°F)

Applications of PFA film

PFA foils are widely used across various industries, particularly in environments that require high temperature and chemical resistance. They are suitable for:

- **Circuit Board Fabrication:** Ideal for reliable performance in electronic applications due to its chemical and thermal resistance.
- **Flat Cable Insulation:** Provides robust electrical insulation for flat cables in modern devices.
- **Electrical Insulation:** High-temperature stability makes it suitable for various insulation needs.
- **High-Temperature Release Film:** Functions effectively in composite manufacturing processes.
- **Vacuum Bagging Film:** Used in composite applications, withstanding curing temperatures up to 230°C (446°F).



Circuit Board Fabrication



PFA high temperature release film



PFA welding film

PFA film properties

		PFA GP – General Purpose	PFA WF – Welding Film
General Properties	Test Method		
Specific Gravity		2.15	
Area Yield m ² /kg/mm (ft ² /lb/mil)		727.4(90)	
Flammability	UL-94	V-0	
Water Absorption %		<0.01	
Standard width mm(in)		Max 1,600mm (63 inches) Any slit width is available	
Thickness Available mm(mil)		0.012 to 0.25mm (0.5 to 10 mil)	
Colors		Clear	
Mechanical Properties			
Tensile Strength MPa(psi)	ASTM D882	35(5,000)	
Elongation at Break %	ASTM D882	500	
Tensile Modulus MPa(psi)	ASTM D882	483(70,000)	
Initial Tear Strength g/mm(g/mil)	ASTM D1004	9,840(250)	
Propagation Tear Strength g/mm(g/mil)	ASTM D1922	1,470(37.5)	
Folding Endurance (MIT) cycles	ASTM D2176	100,000	
Thermal Properties			
Continuous Use Temp °C(°F)	UL-746B	260(500)	
Melt Point °C(°F)	ASTM D3418	302-310(575-590)	
Electrical Properties			
Dielectric Strength volts/mm(volts/mil)	ASTM D149	256,000(6,500)	N/A
Dielectric Constant 1kHz	ASTM D150	2.0	N/A
Dissipation Factor 1kHz	ASTM D150	0.0002 – 0.0007	N/A
Optical Properties			
Refractive Index	ASTM D542	1.35	N/A
Solar Transmission %	ASTM E424	96	N/A
Surface Treatments Available			
Chemical Etching		Available	
Plasma Treatment		Available	
Applications			
Composite Molding Process: Release Films			
Chemical Process/Equipment		√	√
Heat Sealing/Welding/Melt Adhesive			√
Electrical/Electronics		√	
Medical		√	
Optical/Photovoltaics		√	
Protective/Decorative		√	



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