

PVDF Film

PVDF Film/PVDF Foil

ESONE PVDF film is manufactured from Polyvinylidene Fluoride resins through a melt extrusion casting process. These films provide all the advantages of fluoropolymer films, including resistance to extreme thermal, chemical, and ultraviolet conditions, excellent weather resistance, non-stick properties, and superior dielectric performance. PVDF films can also be heat-sealed, thermoformed, and laminated onto various substrates like PVC, Floor, Color steel tile and aluminum-plastic panel.

Advantages

- High dielectric strength
- Outstanding abrasion resistance
- Exceptional weather resistance and UV stability
- Excellent fire resistance, achieving a UL V-0 rating
- Capable of being thermoformed and heat-sealed
- Chemically inert, with resistance to a wide range of chemicals
- Continuous service temperature can reach up to 150°C (300°F)
- Superior non-stick and low friction characteristics typical of fluoropolymers

Specification

- Thickness options range from 12um to 250um (0.0005" to 0.010")
- Standard width available: up to 1,600mm (63")
- Custom slit widths can be provided upon request
- Surfaces that are bondable (plasma treated or chemically etched) are available

Applications of PVDF film

●Wallcovering

Monochromatic or transparent PVDF films can be laminated with PVC, PET, or other substrates, creating non-stick, bacteriostatic, and aging-resistant wallcoverings. They are widely used in hospitals due to their bacteriostatic properties, ease of cleaning, and resistance to disinfectants. Common applications include inpatient wards, aisles, and crowded areas. Custom designs for PVC or PET substrates are available.

●Steel & PVC & Wood

Due to the weathering and abrasive resistance, ESONE PVDF films is typically used as the environmental ageing protection for colored steel, aluminum sheet or floor. The special formulated PVDF film has one special side which can laminate these substrates. The lamination process can be heat lamination or chemical lamination.

●Aircraft & High speed train Decoration

ESONE PVDF film for Aircraft & High speed train Decoration is using pure PVDF film to laminate the wall, resulting in a non-stick and easy to clean activity space. Along with the growing needs for disinfection, more and more companies are using PVDF film to cover the wall, floor and ceiling, so that all the space is film covered, clean and safe.

●Chemical Processing and Liquid Storage

Due to its exceptional chemical resistance to most acids and solvents, PVDF films serve as a contact surface for the production, storage, and transfer of corrosive fluids. Common applications include linings for chemical tanks, pump diaphragms, water treatment, and chemical storage bags.

●Gas and Liquid Sampling Bags

PVDF films are free of additives, exhibiting complete bio-medical and chemical inertness with very low extractable levels. Their flexibility and ease of heat sealing make them ideal for use in sampling bags.

●Outdoor Protection

With excellent weather resistance, UV stability, and abrasion resistance, PVDF films are highly effective for over-laminating billboards, traffic signs, and awnings.

●Decorative and Anti-Graffiti Applications

The non-stick characteristics and outstanding solvent resistance of PVDF films make them essential for covering high-traffic areas that require frequent cleaning with strong solvents and cleaning agents.

●Photovoltaic Panels

Thanks to their impressive dielectric properties, fire resistance, and high solar transmittance, PVDF films are well-suited for use in both the back sheet and front sheet glazing of photovoltaic panels. They are widely used as an external layer for the back sheet, providing long-term protection for PV modules against environmental factors.



High speed train Decoration



Home wallcoverings



Hospital wallcovering



Photovoltaic Panel protection

PVDF film properties

		PVDF Film
General Properties	Test Method	
Specific Gravity		1.78
Area Yield m ² /kg/mm (ft ² /lb/mil)		85.35(108)
Flammability	UL-94	V-0
Water Absorption %		<0.04
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	35-48(5,000-7,000)
Elongation at Break %	ASTM D882	250
Tensile Modulus MPa(psi)	ASTM D882	685-1172(100,000-170,000)
Folding Endurance (MIT) cycles	ASTM D2176	>25,000
Thermal Properties		
Continuous Use Temp °C(°F)	UL-746B	150(300)
Melt Point °C(°F)	ASTM D3418	161-168(322-334)
Coeff. of Lin. Thermal Expansion m/°C(in/°F)	ASTM D696	1.0×10 ⁻⁶ (7×10 ⁻⁵)
Electrical Properties		
Dielectric Strength volts/mm(volts/mil)	ASTM D149	51,181-59,055(1,300 - 1,500)
Dielectric Contant 1kHz	ASTM D150	3.2 - 10.2
Optical Properties		
Refractive Index	ASTM D542	1.4
Solar Transmission %	ASTM E424	90
Surface Treatments Available		
Chemical Etching		Available
Plasma Treatment		Available
Applications		
Chemical Process/Equipment		√
Electrical/Electronics		√
Medical		√
Optical/Photovoltaics		√
Protective/Decorative		√



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