

HALAR® thin gauge films Data Sheet

Halar® ECTFE is a semi-crystalline and melt-processable fluoropolymer resin manufactured by Solvay Solexis. Because of its chemical structure - a 1:1 alternating copolymer of ethylene and chlorotrifluoroethylene - Halar® ECTFE offers a unique combination of properties.

Ajedium's Halar® film is a strong, hard, tough, abrasion resistant film that retains its useful properties over a broad range of temperatures. Its low-temperature properties, especially those related to impact, are particularly outstanding. Halar® ECTFE films also have good tensile, flexural and wear resistant properties.

In addition, Halar® ECTFE films have demonstrated excellent weathering properties and are extremely resistant to UV radiation and common industrial or environmental pollutants.

Halar® film is an excellent barrier to water vapor in a wide range of temperatures. This lower permeability is a key advantage in applications where protection from water as well as oxygen or other small gaseous molecules is required.

Halar® ECTFE films exhibit high bulk and surface resistivity, high dielectric strength, low dielectric constant, and moderate dissipation factor. The dissipation factor varies slightly with frequencies above 1 kHz. The dielectric constant of Halar® is stable across broad temperature and frequency ranges.

MANUFACTURING

Halar® ECTFE transparent films are extruded by Ajedium in a wide range of thicknesses, widths and lengths. Surface treated films are also available.

For further information on Halar® films produced by Ajedium Films, a division of Solvay Solexis, Inc. contact your Solvay Solexis representative or go to www.ajedium.com.

HALAR® TRANSPARENT THIN GAUGE FILMS TYPICAL PROPERTIES

	Test Method	Typical Values	
		SI Units	US Customary Units
Physical and Thermal Properties			
Density	ASTM D-1505	1.66-1.70 g/cm ³	132-135 lb/ft ³
Thickness Range		25-200 µm	1-8 Mil
Melting Point	ASTM D-3418	240-244 °C	464-471 °F
Thermal Conductivity @ 40 °C (104 °F)	ASTM C-177	0.15 W/(m·K)	0.9 BTU-in/(h·ft ² ·°F)
Water Vapor Transmission Rate @ 38°C (100°F) and 90% RH For a 50 µm film Cast film	ASTM F-1249	1.6 g/m ² -d	
Mechanical Properties		MD TD	MD TD
Stress at Break @ 23 °C (73 °F)	ASTM D 882	53 MPa 50 MPa	7700 psi 7300 psi
Elongation at Break @ 23 °C (73 °F)	ASTM D 882	280 % 280 %	280 % 280 %
Modulus @ 23 °C (73 °F)	ASTM D 882	1550 MPa 1500 MPa	225 kpsi 218 kpsi
Shrinkage		MD TD	MD TD
Free shrink % @ 200°C	30 min in oven	4.4 % 0 %	4.4 % 0 %
Electrical Properties			
Surface Resistivity at 23°C	ASTM D 257	> 10 ¹⁷ Ohm	> 10 ¹⁷ Ohm
Volume Resistivity	ASTM D 257		
@ 23°C – 73°F		6·10 ¹⁶ Ohm-cm	6·10 ¹⁶ Ohm-cm
@ 80°C – 176°F		4·10 ¹⁵ Ohm-cm	4·10 ¹⁵ Ohm-cm
@ 130°C – 266°F		2·10 ¹³ Ohm-cm	2·10 ¹³ Ohm-cm
Dielectric Constant at 1 kHz	ASTM D 150		
@ 23°C - 73°F		2.5	2.5
@ 100°C - 212°F		2.6	2.6
Dissipation factor at 1 kHz	ASTM D 150		
@ 23°C - 73°F		1·10 ⁻³	1·10 ⁻³
@ 100 °C – 212°F		2·10 ⁻³	2·10 ⁻³

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