

ELCRES™ HTV150A FILM

PRODUCT DATASHEET

KEY FEATURES & BENEFITS

ELCRES™ HTV150A film is a high heat engineering thermoplastic film that offers solutions for high-voltage, high-temperature DC link power capacitors that can store large amounts of electrical energy for long periods without significant current leakage or loss of charge. ELCRES™ HTV150A film exhibits stable properties throughout a wide temperature range (-40°C to +150°C) and frequency (up to 100 kHz), including stable capacitance, good insulation resistance, stable dielectric constant (Dk) and low dissipation factor (Df). ELCRES™ HTV150A film has been validated by customers with both film-foil and metalized electrodes, including flat aluminum, heavy edge/light body and fused/patterned electrode designs. ELCRES™ HTV150A film offers excellent handling through metallization, winding and capacitor squashing / flattening.



TYPICAL PROPERTIES*

	Test method	Unit	Value (5μm)	Value (3μm)
Thickness				
Mean Thickness	In-line x-ray	μm	5.0	3.0
Thickness variation	In-line x-ray	% (3σ / average thickness)	2.1	4.3
Electrical				
Breakdown Strength (BDS) 23°C	ASTM D149	V/μm	765	
Breakdown Strength (BDS) 150°C	ASTM D149	V/μm	725	
Dielectric Constant (Dk) at 27°C, 1 kHz (metallized film)	ASTM D150		2.9	
Dissipation Factor (Df) at 27°C, 1 kHz (metallized film)	ASTM D150		0.0017	
Clearing Counts @ 200 V/μm	Bosch Test	Counts/m ²	1.5	--
Clearing Counts @ 250 V/μm	Bosch Test	Counts/m ²	2.5	--
Clearing Counts @ 300 V/μm	Bosch Test	Counts/m ²	5.5	--
Thermal				
Coefficient of Thermal Expansion (MD)	JIS K7197	(x10 ⁻⁶ /°C)	101	103
Coefficient of Thermal Expansion (TD)	JIS K7197	(x10 ⁻⁶ /°C)	138	149
Glass Transition Temperature (Tg)	ASTM D3418	°C	206	206
Shrinkage @ 150°C / 0.5 hr (MD)	JIS K7133	%	-0.21	-0.37
Shrinkage @ 150°C / 0.5 hr (TD)	JIS K7133	%	-0.21	-0.23
Shrinkage @ 170°C / 0.5 hr (MD)	JIS K7133	%	-0.34	-0.50
Shrinkage @ 170°C / 0.5 hr (TD)	JIS K7133	%	-0.25	-0.24

	Test method	Unit	Value (5µm)	Value (3µm)
Physical				
Density	ASTM D792	g/cm ³	1.12	1.12
Water Absorption, Equilibrium, 23°C, 24 hours	ASTM D570	%	0.30	0.30
Surface roughness of roll face	JIS B0601	µm	0.23	0.21
Surface roughness of air face	JIS B0601	µm	0.25	0.23
COF (Dynamic) - Metal/Bare film	JIS K7125		0.44	0.51
COF (Static) - Metal/Bare film	JIS K7125		0.47	0.56
Mechanical				
Tensile Modulus (MD)	JIS K6781	MPa	2510	2490
Tensile Strength @ Break (MD)	JIS K6781	MPa	66	65
Tensile Elongation to Break (MD)	JIS K6781	%	39	22
Tensile Modulus (TD)	JIS K6781	MPa	2440	2410
Tensile Strength @ Break (TD)	JIS K6781	MPa	64	60
Tensile Elongation @ Break (TD)	JIS K6781	%	17	11
Tear Strength (MD)	JIS K7128	N/mm	100	83
Tear Strength (TD)	JIS K7128	N/mm	97	83

* These are typical properties and are not intended for specification purposes. Reported values are based on 5 & 3 µm film thickness and are tested at machine direction unless otherwise noted. BDS, Dk and Df are based on 3 µm film thickness.

MANUFACTURING SPECIFICATIONS

Gauge	5 µm & 3 µm
Standard Roll Width	620 mm
Standard Roll Length	5000 m
Color code	1000
Color	Natural clear

CONTACT DETAILS:

AMERICAS

SABIC Technical Answer Center
T: 1-800-845-0600
E: productinquiries@sabic.com

EUROPE

SABIC Technical Answer Center
T: (0) 0 800 1 238 5060
T2: 00 36 1 238 5060
E: webinquiries@sabic.com

ASIA PACIFIC

SABIC
T: +86 21 2037 8118
E: asiaproductinquiries@sabic.com

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