

ZeonorFilm®

Isotropic, low birefrigence optical grade Cyclo-Olefin Polymer (COP) film with superior optical properties. Commonly used in polarizer and touch sensor constructions for smart phones, tablets, and TVs.

Property	Unit	Test Standard	ZF14-series	ZF16-series
Physical Properties				
Specific gravity (25 °C)		JIS Z8807	1.03	1.04
Water absorption	%	ASTM D570	< 1	< 1
Optical Properties				
Refractive index (Spectroscopic ellipsometry reflected light 590 nm)			1.534	1.534
Light transmittance	%	JIS K7361	91.5	91.5
Haze	%	JIS K7136	< 0.1	< 0.1
Retardation (AxoScan: 590 nm)	nm		< 10	< 6
Electrical Properties				
Dielectric constant (1 MHz)		ASTM D150	2.4	2.4
Mechanical Properties				
Tensile strength (10 mm/min)	MPa	ASTM D412	70	80
Tensile elongation (10 mm/min)	%	ASTM D412	50	20
Pencil hardness		JIS K5600-5-4	3B	3B
Thermal Properties				
Glass transition temperature* (1 Hz, 2 °C/min)	°C	ASTM D4065	140	170
Linear expansion coefficient (25 °C - 100 °C)	ppm/°C	ASTM E831	70	70
Available Grades				
50 μm thickness	μm		ZF14-50	ZF16-50
100 µm thickness	μm		ZF14-100	ZF16-100
188 µm thickness	μm		ZF14-188	

Properties established at 100 µm thickness.

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Typical properties. Not to be used for purposes of establishing specification(s).

^{*}Glass transition temperature was defined as the temperature at which there was a change in the storage modulus (E').