

Teonex[®] HV

*The New High Temperature Dielectric
Film for Power Capacitors*

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DuPont Teijin Films, the world's leading supplier of thin PET and PEN films for capacitors, has developed a new high temperature film dielectric aimed at capacitors used in power conversion systems for transportation, automotive, industrial and lighting.

The Benefits

Highest Energy Density Storage

This allows capacitors to be made smaller which gives benefits in applications where space or weight reductions are desirable.

High Temperature Operation up to 150°C

This allows capacitors to be used with higher operating temperatures which gives benefits in reduction or elimination of cooling systems and corresponding reductions in cost and weight.

Energy Density of Teonex[®] HV

The energy density of a dielectric indicates how much energy the capacitor dielectric can store within a defined volume (or weight) and is dependant on the film's physical parameters such as break-down voltage and dielectric constant.

Capacitors using Teonex[®] HV as dielectric have the highest energy density per volume and weight over the entire temperature range from -55 to 150°C.

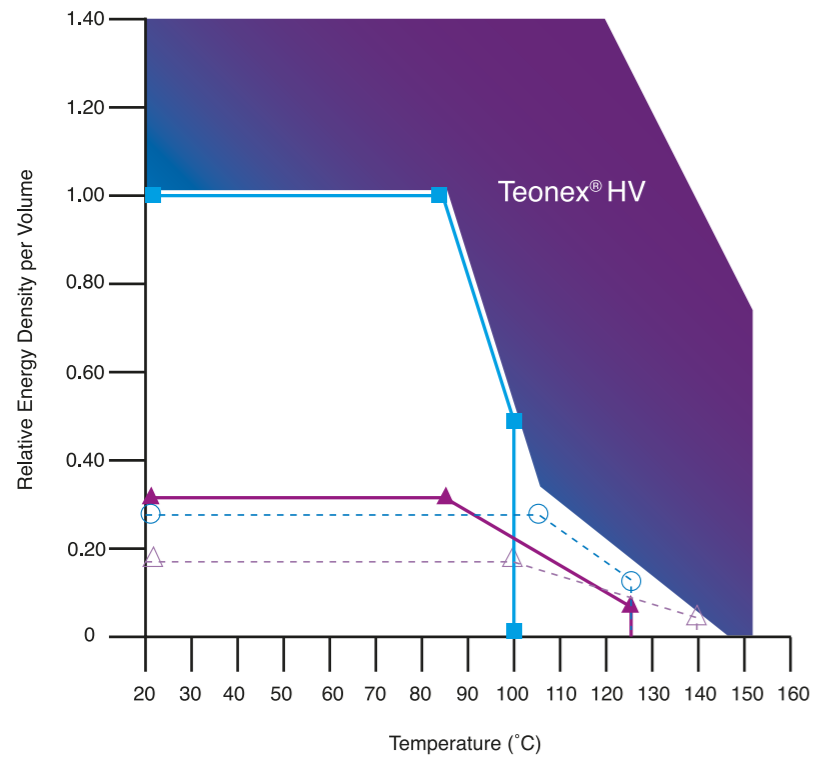
The Teonex[®] HV characteristics will allow the most compact capacitor design in power applications, especially when they have to operate at highest temperatures.

Metallised Teonex[®] HV film capacitors exhibit self healing properties required in power applications.

Teonex[®] HV films enable market leading power electronics designers to deliver innovative, high quality devices.

The graph shows typical relative energy density for capacitors made from different dielectric materials. Actual values may vary depending on the capacitor design and construction. Customers are advised to check actual values with the capacitor manufacturer before use.

Energy Density per Volume of Teonex® HV



Key Teonex® HV BOPP PET PEN PPS





Energy Density of Teonex® HV

Teonex® HV, offers the high temperature capability of DuPont Teijin Films existing PEN film range for capacitors, but operates at significantly higher operating voltage.

This makes it suitable for use in power capacitors in general and in particular those applications where a high temperature operating range is important.

The film is available in thickness of 2.5, 2.8, 3.0 and 4.0 microns. Other thickness grades could be offered depending on the demand.

Property	Test Method	Units	4HV	3HV	2.8HV	2.5HV
Film Thickness	Unit Weight	Micron	4	3	2.8	2.5
Modulus MD	ASTM D-882	N/mm ²	4400	4400	4400	4400
Modulus TD			5000	5000	5000	5000
Tensile Strength MD	ASTM D-882	N/mm ²	180	180	180	180
Tensile Strength TD			200	200	200	200
Elongation MD	ASTM D-882	%	85	85	85	85
Elongation TD			50	50	50	50
Shrinkage MD	150°C, 30 min	%	1.5	1.5	1.5	1.5
Shrinkage TD			0.5	0.5	0.5	0.5

(1) DuPont Teijin Films method - metallised film sheet, typical average value

(2) DuPont Teijin Films method - aluminium sheet electrodes - 25mm²

Property	Test Method	Units	4HV	3HV	2.8HV	2.5HV
Film Thickness	Unit Weight	Micron	4	3	2.8	2.5
Shrinkage MD	200°C, 30 min	%	4.5	4.5	4.5	4.5
Shrinkage TD			2.5	2.5	2.5	2.5
Surface Roughness Ra	Profilometer	nm	70	70	70	70
Surface Roughness Rt			750	750	750	750
Dielectric Constant, 1kHz	JIS C-2318, 1kHz, 25°C	(-)	2.95	2.95	2.95	2.95
Dissipation Factor, 1kHz	1kHz, 25°C ⁽¹⁾	%	0.35	0.35	0.35	0.35
Dielectric Strength	25 mm ² electrode, 25°C ⁽²⁾	V	1750	1200	1120	1000
		V/micron	450	400	400	400
Melting Point	DSC	°C	263	263	263	263

*For further information on this range
of polyester films please contact*

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Caution: Do not use in medical application involving permanent implantation in the human body.
For other medical application, see DuPont Teijin Films Medical Caution Statement, H-50102-1-DTF.

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