Technical Data Sheet – CPi3 & CPiC3 Laminates

1. COMPOSITION

CPi3 is a 2-ply laminate of CeQUIN3000 3mil/75micron mineral insulation paper bonded to Polyimide film.

CPiC3 is a 3-ply laminate of CeQUIN3000 3mil/75micron mineral insulation paper bonded to Polyimide film.

2. GENERAL CHARACTERISTICS

The CPi3i and CPiC3 laminates combine the high mechanical and dielectrical strength of polyimide film with the excellent thermal and dielectric characteristics of mineral papers.

With the thermally stable outer layers of CeQUIN3000 the composite is certified by UL as component for electrical insulation systems in CLASS N 200°C. Additionally the inorganic content in CeQUIN provides excellent resistance to hot cut-through in high temperature applications. The high thermal conductivity of CeQUIN/Pi Film laminates promotes cooler running equipment, leading to longer insulation life, better reliability, and more efficient use of power. The laminates are non-hygroscopic and exhibit low moisture absorption characteristics, thus reducing the need for extended drying cycles prior to varnishing or encapsulation. In contrast to TufQUIN laminates the CeQUIN laminates have a higher inorganic content and a more porous structure. This results in better absorption of impregnation resins and higher resistance to corona and partial discharge.

The polyimide ply provides a good memory shape and snapback. The laminates exhibit also excellent resistance to tear initiation and tear propagation in both the machine direction and cross direction. The good elongation characteristics let the laminates absorb the stress of heavy duty winding applications.

3. APPLICATION

- Wedges and slot insulation in electrical motors
- Phase insulation in electrical motors
- Interlayer insulation in transformer and magnet coils
- Automated insertion processing
- Wrap application on rectangular copper and aluminium conductors
- …

4. NOTES

These values are typical performance data. They are not intended to be used as design data. We belief this information is the best currently available on the subject. It is offered as a possibly helpful suggestion in any experimentation you may care to undertake along these lines. It is subject to revision as and when additional knowledge and experience is accumulated. DICAMIT makes no guarantee for the results and assumes no obligation or liability whatsoever in connection with this information.

On the values of Thickness and Area Weight are subject to a tolerance of +/- 15%.

3M Distributor Converter Laminator

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5. TECHNICAL INFORMATION

Nominal Thickness			[mm]	CPi3-0,11	CPi3-0,13	CPi3-0,15
Type:				2-Ply	2-Ply	2-Ply
Composition:			[mil]	3+1,2	3+2	3+3
Total Thickness		ASTM D645	[mil/mm]	4 / 0,11	5 / 0,13	6 / 0,15
Thickness CeQUIN3000		ASTM D645	[mil/micron]	3 / 75	3 / 75	3 / 75
Thickness Polyimide Film		ASTM D645	[mil/micron]	1,2 / 30	2 / 50	3 / 75
Area Weight		ASTM D202	[g/m2]	125	144	179
Elongation	MD	ASTM D828	[%]	4,2		
	CD	ASTM D828	[%]	59		
Tensile Strength	MD	ASTM D828	[N/cm]	45		
	CD	ASTM D828	[N/cm]	43		
Shrinkage	MD		[%]	1,5	1,5	1,5
	CD		[%]	1,5	1,5	1,5
Breakdown Strength		ASTM D149	[kV]	6	6,5	8,5
Max. Moisture Content		ASTM D664	[%]	<1	<1	<1
Heat Conduction		E-1530	[W / m-k]	0,119		
Effect of Heat		IEC 60626-2 Clause 7		Test @ 180°C; No blistering or delamination		

Nominal Thickness			[mm]	CPiC3-0,18	CPiC3-0,20	CPiC3-0,23
Type:				3-Ply	3-Ply	3-Ply
Composition:			[mil]	3+1,2+3	3+2+3	3+3+3
Total Thickness		ASTM D645	[mil/mm]	7,2 / 0,18	8 / 0,20	6 / 0,23
Thickness CeQUIN3000		ASTM D645	[mil/micron]	3 / 75	3 / 75	3 / 75
Thickness Polyimide Film		ASTM D645	[mil/micron]	1,2 / 30	2 / 50	3 / 75
Area Weight		ASTM D202	[g/m2]	190	218	253
Elongation	MD	ASTM D828	[%]			
	CD	ASTM D828	[%]			
Tensile Strength	MD	ASTM D828	[N/cm]			
	CD	ASTM D828	[N/cm]			
Shrinkage	MD		[%]	1,5	1,5	1,5
	CD		[%]	1,5	1,5	1,5
Breakdown Strength		ASTM D149	[kV]	6	7,5	9,5
Max. Moisture Content		ASTM D664	[%]	<1	<1	<1
Heat Conduction		E-1530	[W / m-k]			
Effect of Heat		IEC 60626-2 Clause 7		Test @ 180°C; No blistering or delamination		

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