Ceramosite™ TF3

1. COMPOSITION

Ceramosite™ TF3 (3mil) is a 2-ply composite of TufQUIN™ 3mil (0,075mm) mineral insulation paper bonded with one side of polyester film with the means of a high-quality resin.

2. GENERAL CHARACTERISTICS

The TF composite combines the high mechanical and dielectrical strength of polyester film with the excellent thermal and dielectric characteristics of mineral papers.

With the thermally stable outer layers of TufQUIN™ the composite is certified by UL as component for electrical insulation systems in CLASS N 200°C. The high thermal conductivity of TufQUIN/film laminates promotes cooler running equipment, leading to longer insulation life, better reliability, and more efficient use of power. Additionally the inorganic content in TufQUIN provides excellent resistance to hot cut-through in high temperature applications. TF laminates are non-hygroscopic and exhibit low moisture absorption characteristics, thus reducing the need for extended drying cycles prior to varnishing or encapsulation.

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

As approved 3M laminator the Ceramosite™ TF laminates of MaterialPartner Technische Werkstoffe GmbH are qualified for use as major ground insulation in electrical insulation systems rated through Class 200(N) per UL 1446 and IEC Std. 61857. 3M Innovative Paper Technologies UL Recognized Insulation Systems (File No. E65007) may be found on UL's Electrical Insulation Systems Database at http://www.database.ul.com

3. APPLICATIONS

- 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. TECHNICAL VALUES

Nominal Thickness			[mm]	0,087	0,10	0,13	0,15	0,18
Composition		IEC 60626-2 / 4	[µm]	75/12	75/23	75/50	75/75	75/100
Thickness Film		IEC 60626-2 / 4	[µm]	12	23	50	75	100
Composition		IEC 60626-2 / 4	[mil]	3-0,5	3-1	3-2	3-3	3-4
Thickness Film		IEC 60626-2 / 4	[mil]	0,5	1	2	3	4
Area Weight		IEC 60626-2 / 5	[g/m2]	119	135	171	205	240
Elongation	MD	IEC 60626-2 / 7	[%]	24	24	23	98	98
	CD	IEC 60626-2 / 7	[%]	36	56	83	101	108
Tensile Strength	MD	IEC 60626-2 / 7	[N/cm]	34	68	88	143	180
	CD	IEC 60626-2 / 7	[N/cm]	80	119	126	165	190
Shrinkage	MD		[%]	1,5	1,5	1,5	1,5	1,5
	CD		[%]	1,1	1,1	1,1	1,1	1,1
Breakdown Strength		IEC 60626-2 / 10	[kV]	2	3	8	10	12
Max. Moisture Content		IEC 60626-2 / 12	[%]	1	1	1	1	1
Temperature Class		IEC 61857	°C	200	200	200	200	200

Nominal Thickness			[mm]	0,20	0,27	0,33	0,38	0,43
Composition		IEC 60626-2 / 4	[µm]	75/125	75/190	75/250	75/300	75/350
Thickness Film		IEC 60626-2 / 4	[µm]	125	190	250	300	350
Composition		IEC 60626-2 / 4	[mil]	3-5	3-7,5	3-10	3-12	3-14
Thickness Film		IEC 60626-2 / 4	[mil]	5	7,5	10	12	14
Area Weight		IEC 60626-2 / 5	[g/m2]	276	369	451	521	591
Elongation	MD	IEC 60626-2 / 7	[%]	118	135	133	145	167
	CD	IEC 60626-2 / 7	[%]	112	128	120	125	132
Tensile Strength	MD	IEC 60626-2 / 7	[N/cm]	256	291	394	452	592
	CD	IEC 60626-2 / 7	[N/cm]	287	343	476	498	550
Shrinkage	MD		[%]	1,5	1,5	1,5	1,5	1,5
	CD		[%]	1,1	1,1	1,1	1,1	1,1
Breakdown Strength		IEC 60626-2 / 10	[kV]	14	16	22	25	30
Max. Moisture Content		IEC 60626-2 / 12	[%]	1	1	1	1	1
Temperature Class		IEC 61857	°C	200	200	200	200	200

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5. STORAGE AND AVAILABILITY

- Shelf life is 18 months from EXW date in original packing and under normal conditions (room temperature, 50% relative humidity)
- Standard width is 930 mm
- Available from 10 mm width upwards

6. NOTES

All statements, technical information, and recommendations contained in this document are based on tests or experience that we believe are reliable. However, many factors beyond our control can affect the use and performance of a product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates the product to determine whether it is fit for a particular purpose and suitable for the user's method or application.

Values presented have been determined by standard test methods and are average values not meant to be used for specification purposes. Tolerances on thickness and area weight are +/- 15% if not stated differently.

All questions of warranty and liability relating to our products are governed by the terms of the respective sale subject, where applicable, to the prevailing law.

7. VERSIONING

Rev. 2 dated 16/07/2026