

# 3M™ TufQUIN TF 5+14

## Duplex Electrical Insulating Paper

Data Sheet

November 2013

3M™ TufQuin TF Duplex Electrical Insulating Paper is TufQUIN Hybrid Insulating Paper bonded to polyester (PET) film. TufQUIN TF paper is qualified for use as major ground insulation in electrical insulation systems rated through Class 200(N) per UL 1446 and IEC Std. 61857. It is suitable for applications including slot cell, phase, and wedge insulation in motors and generators as well as ground and layer insulation in dry-type transformers. TufQUIN TF laminates are well-suited for automatic insertion applications, as well as heavy-duty winding applications. 3M UL Recognized Insulation Systems may be found under File E65007.

Properties	Units	ASTM Test Method	Typical Values
Nominal Thickness	mm mil	D-645	0.48 19
Basis Weight	g/m <sup>2</sup> lb/yd <sup>2</sup>	D-202	645 0.84
Tensile Strength, MD	lb/inch N/cm	D-828	245 429
Tensile Strength, CD	lb/inch N/cm	D-828	314 550
Elongation to Break, MD	%	D-828	40
Elongation to Break, CD	%	D-828	132
Elmendorf Tear, MD	g N	D-689	740 7.3
Elmendorf Tear, CD	g N	D-689	1500 14.7
Dielectric Breakdown Voltage	kV	D-149	30
Moisture Absorption	%	D-644	<1

3M is a trademark of 3M Company.

### Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product, which are not contained in 3M's current publications, or any contrary statements contained on your purchase order, shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

### Warranty; Limited Remedy; Limited Liability

This product will be free from defects in material and manufacture at the time of purchase. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.



### Electrical Markets Division

6801 River Place Blvd.

Austin, Texas 78726-9000

855 293 6018

FAX 800 828 9329

[www.3M.com/flexibleinsulation](http://www.3M.com/flexibleinsulation)

Please recycle

© 3M 2013 All rights reserved

78-8141-6449-3 Rev A

