

# 3M™ ThermaVolt AR

Preliminary Data Sheet

June 2011

## Description

3M ThermaVolt AR is a new inorganic-based calendered insulation for transformers. ThermaVolt AR contains a high performance fiber backbone that promotes good mechanical strength, and inorganic content which offers good dielectric strength and thermal stability.

## Agency Approvals & Self Certifications

3M™ ThermaVolt AR is designed to provide high-temperature performance in electrical insulation systems, and is UL Recognized as suitable for use as major ground insulation in systems rated through Class 220(R) per UL 1446, "Standard for Systems of Insulating Materials – General."

UL Recognized Insulation systems are listed under IPT File No. E65007 in the OBJS2 category. This open file is free for use by any electrical apparatus manufacturer by contacting the nearest UL office. This file is also recognized by UL as being in compliance with International Electrotechnical Commission (IEC) Publication 85, "Thermal Evaluation and Classification of Electrical Insulation."

RoHS 2002/95/EC



RoHS Compliant 2002/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2002/618/EC, unless the substance is in an application that is exempt under RoHS. This information represents 3M's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.

## Applications

Open Ventilated Dry-Type Transformers rated through Class 220(R).

- major ground insulation
- minor insulation
- core wrap
- high-low barrier
- inter-winding insulation
- turn insulations

## Physical Characteristics

The high inorganic content of ThermaVolt AR provides exceptional thermal and dielectric stability for high temperature electrical insulation applications, along with good thermal conductivity to help dissipate heat build-up in electrical equipment.

ThermaVolt AR Electrical Insulating Materials offer a combination of tensile strength, tear resistance, and stiffness that yields a tough but still conformable sheet. ThermaVolt AR Paper is available in thicknesses from 3 to 11.5 mils.

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Typical Properties      Not for specifications. Values are typical, not to be considered minimum or maximum.  
 Properties measured at room temperature 73°F (~23°C ) unless otherwise stated.

Typical Product Properties						
		ASTM Test Method				
<b>Nominal Thickness</b>	mil	D-645	3	5	7	11.5
	mm		0.08	0.13	0.18	0.29
<b>Basis Weight</b>	g/m <sup>2</sup>	D-202	87	168	244	429
	lb/yd <sup>2</sup>		0.16	0.31	0.45	0.79
<b>Tensile Strength, MD</b>	lb/inch	D-828	25	72	81	135
	N/cm		44	126	142	236
<b>Tensile Strength, CD</b>	lb/inch	D-828	10	30	34	65
	N/cm		18	53	60	114
<b>Tensile Elongation, MD</b>	%	D-828	1.9	3.5	2.9	3.0
<b>Tensile Elongation, CD</b>	%	D-828	1.4	4.1	2.6	2.5
<b>Elmendorf Tear, MD</b>	g	D-689	146	312	416	505
	N		1.4	3.1	4.1	4.9
<b>Elmendorf Tear, CD</b>	g	D-689	362	780	1050	1110
	N		3.5	7.7	10.3	10.9
<b>Dielectric Breakdown Strength</b>	kV	D-149	0.85	1.5	3.4	6.5

**Shelf Life & Storage**      This product has a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).

**Availability**      Please contact your local distributor; available from [3M.com/electrical](http://3M.com/electrical) [Where to Buy] or call 1-866-357-2737 or call 1-800-245-3573.

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