

metastar® YT511 is an uncalendered meta-aramid insulating paper with low density, strong impregnation ability and saturation ability, good resin curing effect and excellent dielectric compensation ability. It has 5 thicknesses (0.13~0.58mm) (5~23mil). It is used where high thickness and adaptability are required, such as motor phase insulation and transformer coil end insulation. It can also be used for auxiliary insulation such as paper insulation on the side of small transformers and terminal strip insulation and lead wire insulation of dry-type transformers.

Electrical performance

metastar® Typical electrical performance values for YT511 aramid paper are shown in Sheet 1. Among them, the dielectric strength value reflects the electric field strength of aramid paper when breakdown occurs under the condition of 50Hz AC fast boost, rather than the long-term withstand voltage level.

Because the chemical composition of YT511 aramid paper is exactly the same as that of YT510 aramid paper, therefore, the effect of temperature on its dielectric properties is the same as that of YT510 aramid paper. The specific impact is shown in Sheet 1 of the technical data sheet of YT510 aramid paper. Its resistance to humidity can be found from Sheet 2 of YT510 aramid paper technical data sheet, as can YT511 aramid paper.

Thermal performance

metastar® YT511 aramid paper has been confirmed by Underwriters Laboratories (UL) with a relative temperature index (RTI) of 210° C, file number E331406, has been verified in perennial application practice.

The relationship between the effective life and temperature of YT511 aramid paper can be found in YT510 aramid paper, and its Arrhenius heat aging characteristic curve is shown in Sheet 1 of YT510 technical data sheet.

Sheet 1 **metastar**® YT511 aramid paper electrical performance typical value

Standard Thickness	mil	5	7	10	15	23
	mm	0.13	0.18	0.25	0.38	0.58
Dielectric strength ¹⁾	V/mil	229	229	203	203	178

	kV/mm	9	9	8	8	7
Dielectric constant ²⁾	—	1.3	1.3	1.3	1.4	1.4
Dielectric loss factor ²⁾	×10 ⁻³	4	4	4	5	5

- 1) Test standard GB/T 1408.1-2006, upper electrode Φ25mm, lower electrode Φ75mm;
2) Test standard GB/T 1409-2006, test frequency 50Hz, using instrument Xilin bridge, electrode Φ50mm

Mechanical properties

metastar® The typical mechanical properties of YT511 aramid paper are shown in Sheet 2. The effects of temperature and humidity on its mechanical properties are shown in Figure 2 and 3 of YT510 aramid paper technical data sheet, these effects are similar to those of YT510 aramid paper.

Chemical stability

metastar® YT511 aramid paper has excellent chemical stability. Due to its extremely stable molecular structure, it is largely unaffected by commonly used industrial solvents and resistant to acid and alkali corrosion.

Aramid paper and its laminates are compatible with all types of electrical varnishes, adhesives, transformer oils, lubricants and refrigerants, as shown in Sheet 6 of the YT510 Technical Data Sheet.

metastar® YT511 aramid paper has a limiting oxygen index (LOI) of ≥ 28%, does not melt in the air, does not assist combustion, and carbonizes the surface at high temperature to form an insulating protective layer, the product has obtained UL94 VTM-0 and V-0 flame retardant certification.

Sheet 2 **metastar®** Typical values of mechanical properties of YT511 aramid paper

Standard Thickness	mil	5	7	10	15	23	Test standards
	mm	0.13	0.18	0.25	0.38	0.58	
Typical Thickness	mm	0.13	0.17	0.25	0.39	0.60	GB/T451.3-2002
Base Weight	g/m ²	42	64	80	140	205	GB/T451.2-2002
Density	g/cc	0.31	0.37	0.32	0.35	0.34	
Tensile Strength	MD	25	40	45	62	115	GB/T12914-2008

N/cm	CD	13	20	32	48	75	
Elongation %	MD	3.3	3.7	3.5	3.0	4.0	
	CD	4.5	5.0	4.5	3.7	5.0	
Tear Strength³⁾ N	MD	1.2	1.8	2.0	4.5	8.5	GB/T455-2002
	CD	1.8	3.0	3.5	7.0	9.0	

3) Elmendorf tear strength, MD in the table indicates longitudinal and CD indicates transverse.

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Attention:

All data are typical or average values and should not be used as technical specifications. Unless otherwise stated, all data are measured under standard conditions (temperature 23 ° C, relative humidity 50%). In addition, the mechanical performance indicators of aramid paper in longitudinal (MD) and horizontal (CD) are different, and in some applications, the orientation of the paper page can be adjusted to achieve its best performance.