



安徽铜峰电子股份有限公司
Anhui Tongfeng Electronics Co., Ltd

产品规格书

Product Specification



产品名称：MPP 型电容器用双向拉伸聚丙烯薄膜

Produce Name: BOPP film for capacitor type MPP

版本/ Revision: A/0

版本 Revision	日期 Date	版本更新记录 Change contents	核准 Approved
A/0	2019-08-08	基本功能 basic function	束庆忠 Qingzhong Shu
A/0	2021-04-30	产品规格改成数字表示 change description to number	束庆忠 Qingzhong Shu

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MPP 型电容器用双向拉伸聚丙烯薄膜

BOPP film for capacitor type MPP

1、特点 Characteristic

采用进口超高纯度电工级均聚聚丙烯树脂，经平膜法双向拉伸而成。具有厚薄均匀性好，机械强度高，电气性能优异的特点，卷制的电容器介质损耗小，绝缘电阻高。

高温型薄膜，耐温特性值为 105℃。

It is stretched in biaxial orientation by means of flat film method by adopting imported high purity homopolymerized polypropylene resin in electrical. It is characterized by the followings, namely good thickness uniformity, high mechanical strength and excellent electric property. The capacitor made by this film has characteristics of small dissipation factor and high insulation resistance.

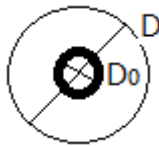
The high temperature type film's characteristic value for heat resistance is 105 °C.

2、应用范围 Application

主要用于金属化膜电容器和箔式电容器，如交流电动机电容器、低压并联电力电容器、节能灯具电容器、混合动力汽车用电容器、直流电容器等。

It is mainly used in metallized - film capacitor and foil-film capacitor, such as AC motor capacitor, low-voltage parallel power capacitor, energy-saving lamps capacitor, capacitors for Hybrid Electric Vehicle, DC capacitors and etc.

3、薄膜尺寸规格 Size specification for MPP Film

规格 Size			2.0	2.2	2.3	2.4	2.7	2.9	3.2	3.4	3.8	4.3
厚度 Thickness	重量法 WMV	μm	2.0	2.2	2.3	2.4	2.7	2.9	3.2	3.4	3.8	4.3
	千分尺法 MMV	μm	2.1	2.3	2.4	2.5	2.85	3.05	3.35	3.55	4.0	4.5
规格 Size			4.5	4.8	5.3	5.8	6.3	6.8	7.8	8.8	9.8	11.8
厚度 Thickness	重量法 WMV	μm	4.5	4.8	5.3	5.8	6.3	6.8	7.8	8.8	9.8	11.8
	千分尺法 MMV	μm	4.7	5.0	5.5	6.0	6.5	7.0	8.0	9.0	10.0	12.0
平均厚度偏差 (WMV) Average Thickness Deviation(WMV)		%	±3% (个别值偏差±4%)									
成品膜卷宽度 Width of finished film roll		m m	620±2 或根据客户需求进行分切 620±2 or cutting according to customers									
内径 (D ₀) Inner Diameter (D ₀)		m m	Φ152.4									
外径 (D) Outer Diameter (D)		m m	Φ420~Φ600									

注：特殊规格另行协商

Note: Special specifications will be discussed separately

4、厚度表示方法 Representation method of thickness

本公司 MPP 膜厚度标称值为重量法厚度 (WMV)

Our nominal value for MPP film thickness refers to WMV.
 示例：MPP03B-3.8 表示 WMV 厚度为 3.8 μm ；
 Examples:MPP03B-3.8 means film thickness in WMV is 3.8 μm 。

5、技术特征（典型值） Technical features (typical value)

项目 Item		单位 Unit	典型数值 Typical Values	测试标准 Testing Standard
			高温型 (MPP03)	
密度 Density		g/cm^3	0.905 $\pm$ 0.005	GB/T 13542.2-2009/11
熔点 Melting Point		$^{\circ}\text{C}$	172 $\pm$ 2	GB/T 13542.2-2009/23
拉伸强度 Tensile Strength	纵向 MD	MPa	160	GB/T 13542.2-2009/11
	横向 TD	MPa	300	GB/T 13542.2-2009/11
断裂伸长率 Elongation at break	纵向 TM	%	140	GB/T 13542.2-2009/11
	横向 TD	%	50	GB/T 13542.2-2009/11
弹性模量 Elastic Modulus	纵向 MD	MPa	2500	GB/T 13542.2-2009/11
	横向 TD	MPa	4000	GB/T 13542.2-2009/11
热收缩率 Thermal Shrinkage	纵向 MD	%	3.0	GB/T 13542.2-2009/23
	横向 TD	%	0.5	
浸润张力 Wetting Tension		mN/m	38	GB/T 13542.2-2009/10
表面粗糙度 Surface Roughness		μm	0.08 $\pm$ 0.02	GB/T 13542.2-2009/8
介电强度（平均值） BDV(DC) (Average)		V/ μm	600	GB/T 13542.2-2009/18.2.2
摩擦系数(静/动) Coefficient of Friction (Static/Sliding)			(0.7—0.9) / (0.6—0.8)	GB/T 10006-1988
相对介电常数 Relative Permittivity			2.2	GB/T 13542.2-2009/17.1
体积电阻率 Volume Resistivity		$\Omega\cdot\text{m}$	$>10^{16}$	GB/T 13542.2-2009/16.1
介电损耗因素 Dielectric Dissipation Factor			2.0×10^{-4}	GB/T 13542.2-2009/17.1

◆ 以上参数非技术协议，仅供参考 The above parameters are non-technical agreement, for reference only.

6、电弱点 Electrical Weakness Point

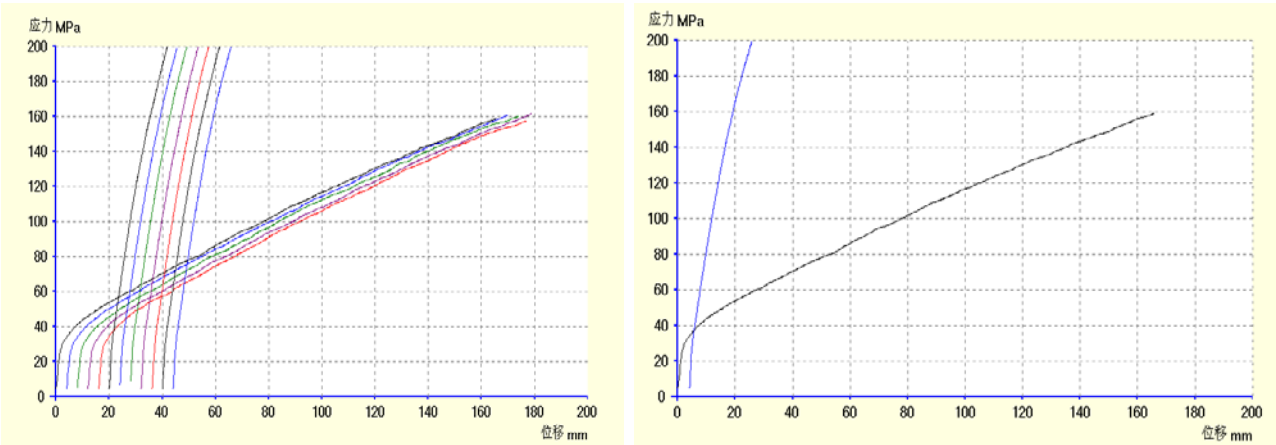
标称厚度 (μm) Nominal Thickness	电弱点数 (个/ m^2)
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(um)	Number of Electrical Weakness Point 300V/ μm
≤ 4	≤ 1.0
5	≤ 0.8
6	≤ 0.7
7	≤ 0.6
8	≤ 0.4
9	≤ 0.3

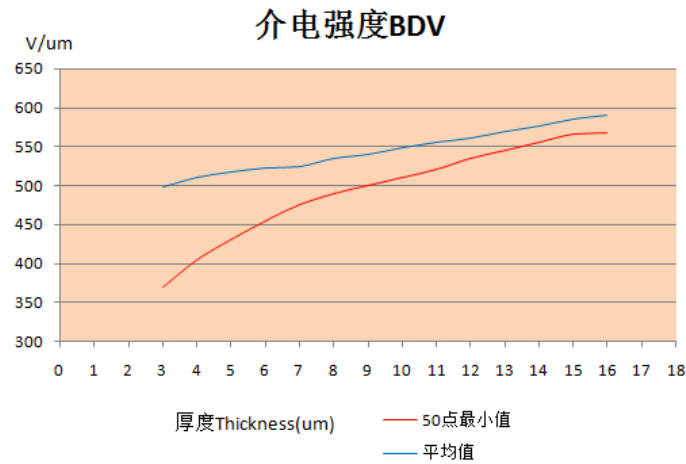
7、化学特性 **Chemical Properties**

灰分 Ash Content	<30ppm
氯含量 Chlorine Content	<10ppm
水含量 Water Content	<50ppm

8、拉伸强度曲线 **Curve of Tensile Strength**



9、介电强度和薄膜厚度关系曲线 **Curve of the Relativity of BDV and Film Thickness**



10、包装 **Package**

每一卷薄膜在分切和检验之后都会用聚丙烯塑料袋进行包裹，以便隔离粉尘和颗粒。膜卷两侧使用泡沫垫片、支撑夹板、堵头进行固定，防止运输过程中膜卷受到挤压。并用纸箱包装、打包、托盘堆垛。托盘的尺寸有：1250mm*790mm、1100mm*700mm、950mm*700mm。堆垛好纸箱缠绕上塑料薄膜，以再次隔绝粉尘、颗粒和水汽。

Each roll of film after slitting and inspection should be wrapped with polypropylene plastic bags to protect against dust and foreign particles. The film roll is also fixed with foam gasket, support plate and plug on both sides of the roll and packed with carton box to prevent rolls from being squeezed in the process of transportation. Each packaging should be tied with plastic straps and stacked in two or three layers on wooden pallet. Standard pallet sizes are: 1250*790,1100*700 and 950*700 .Each pallet is wrapped with stretch film to again dust, particles and moisture.

11、储存 Storage

膜卷在储存过程中应该避免任何形式的冲击；储存环境应该保持干燥，环境温度不应高于 40℃；并且膜卷不宜储存太长时间，否则会影响薄膜的使用性能；建议储存时间不超过 1 年，如储存时间超过 1 年，应该对膜卷的各项性能重新进行评估。

All kinds of vibration and shocks should be avoided to the film in the process of storage and transportation. The film should be stored not more than 1 year in a dry place. Temperature exceeding 40° C should be avoided during transport and storage. If the film is stored for more than 1 year, the film properties should be evaluated again.

12、标签 Label

每一卷膜在包装箱里面和包装箱上都有一张有关膜卷基本信息的标签，如图：

Each roll is equipped with two labels, which are placed on the outer surface of the carton packaging and inside the packaging.



MPP03: 代表薄膜的类型 The type of the rough film, where
B: 代表原料为北欧化工高温粒子 The raw materials is purchased from Borouge Pte.Ltd.in Europe.

2.9um: 代表标称厚度（WMV）Nominal thickness of the film (WMV)

620mm: 代表膜卷的宽度 The width of film roll

220520111910560: 代表膜卷批号 complete customer roll number;
-220520 代表生产日期是 2022 年 5 月 20 日 the date of production is 2022-5-20

-1119 代表大膜卷编号 Production lot number

-105 代表小膜卷分切的号位 Roll position (i.e. position in TD direction in a slitting set)

-6 代表生产线是第六条生产线 The No.6 production line

处理面: 内代表电晕处理面在内侧 Inside means the corona side is inside

接头: 0 代表无接头 The film has no splice.

优等品: 代表该膜卷的等级 The class of the film roll (F/Q)

40000m: 代表膜卷的长度 The length of film roll (m)

2022-5-20: 代表生产该膜卷的日期 Produce date-year/month/day

152mm: 代表纸卷芯内径为 152mm The internal diameter of the core

65.2kg: 代表该膜卷的重量(kg) Net weight of this roll (kg)