D250、D253黑色聚酯薄膜

D250 & D253 Black Polyester Film

符合 Q/DSJ-324-2007　　Issue No.: March 30, 2008

黑色聚酯薄膜由聚对苯二甲酸乙二醇酯（PET）及特种母料经熔融铸片、双轴定向拉伸而制得的黑色聚酯薄膜，适用于胶带、电气绝缘以及乐器制造等领域。

D250 & D253 is biaxial oriented black polyethylene terephthalate (PET) film through melting, casting and stretching. It is used for adhesive tapes, electrical insulation, loudspeakers, musical drums, etc.

根据外观特性将黑色聚酯薄膜分为两种：

D250：产品外观呈亮光状；

D253：产品外观呈亚光状。

Type D250 ------ Appearance is shining.

Type D253 ------ Appearance is matte.

1 技术要求 Technical requirements

1.1 外观 Appearance

薄膜成卷供应，薄膜表面应平整、色泽均匀，不应有折皱、撕裂、颗粒、气泡、针孔和外来杂质等缺陷，薄膜边缘应整齐无破损。

The film is supplied in rolls. Its surface should be flat and smooth, and should be free of defects such as wrinkles, avulsions, particulate matter, blisters, pinholes and contaminations. Edges of rolls should be tidy and clean.

1.2 膜卷、接头及管芯 Film roll, splices and roll core

膜卷、接头及管芯应符合GB12802.2-2004《电气用聚酯薄膜》中7.3、7.4及7.5的规定，其余应符合GB/T 13542-1992中4.2、4.3及4.4的规定。

Film roll, splices and roll core should accord with Items 7.3, 7.4 of Standard GB12802.2-2004. Other items as per items 4.2, 4.3 and 4.4 of Standard GB/T 13542-1992.

1.3 尺寸 Dimension

1.3.1 厚度及偏差 Thickness and Tolerance:

厚度由供需双方协商确定。推荐优选的标称厚度如下：

50μm、75μm、100μm、125μm、188μm、250μm。

100μm及以下薄膜的厚度偏差为标称厚度的±5%，大于100μm～250μm薄膜的厚度偏差为标称厚度的±4%。

Recommended nominal thickness as following:

50μm, 75μm, 100μm, 125μm, 188μm, 250μm.

50μm~100μm　　Tolerance　±5%

＞100μm~250μm　　Tolerance　±4%

Special requirements for thickness could be settled upon negotiation.

1.3.2 接头数及最短段长度

接头数为0，用户有特殊要求时由供需双方协商确定。

Numbers of splice and minimum length: None splice in a roll.

1.4 性能要求 Physical properties

薄膜的性能要求及有关性能的典型值见表1。

Physical properties are as shown in Table 1.

表 1 薄膜的性能

Table 1　Physical properties of Film

序号 No.	指标名称 Properties	单位 Units	指标值 Values	典型值 Typical Values
1	拉伸强度（纵向及横向） Tensile strength　(MD and TD) 标称厚度（μm）：　50～100 Thickness (μm)　＞100～250	MPa	 ≥150 ≥140	 162 151
2	断裂伸长率（纵向及横向） Elongation at Break　(MD and TD) 标称厚度（μm）：　50～100 Thickness (μm)　＞100～250	%	 ≥80 ≥90	 85 95
3	收缩率（纵向及横向） Thermal shrinkage　(MD and TD) 标称厚度（μm）：　50～190 Thickness (μm)　＞190～250	%	 ≤3.0 ≤2.0	 1.8 1.4
4	电气强度　（50Hz） Dielectric Strength　50Hz	V/μm	见表 2 Table 2	见表 2 Table 2
5	体积电阻率 Volume Resistivity	Ω.m	$\geq 1.0\times10^{14}$	3.0×10^{15}
6	相对电容率（50Hz） Relative Dielectric Constant　(50Hz)	—	2.9～3.4	3.0
7	介质损耗因数 Dielectric Dissipation Factor　(50Hz)	—	$\leq 3\times10^{-3}$	6×10^{-4}
8	透光率　标称厚度（μm）：　50～100 Light transmissivity　＞100～250	%	≤7.5 ≤5.5	6.0 4.2
9	光泽度　（ 亚光型薄膜） Glossiness　(D253 only)	%	≤70	61

表 2　电气强度

Table 2　Power Frequency Dielectric Strength of Film　(50Hz)

标称厚度 Nominal thickness (μm)	指标值 Values (V/μm)	典型值 Typical values（V/μm）
50	≥130	156
75	≥105	145
100	≥90	130
125	≥80	105
188	≥65	73
250	≥60	70

2 试验方法 Testing methods

2.1 取样、预处理条件和试验条件 Conditions of sampling, pre-treatment and test

从薄膜卷上取样时，应至少先去掉其最外三层薄膜，然后，再按性能的要求取样及制样。一般情况不考虑预处理条件和试验条件，有争议时按 GB/T13541-1992（IEC60674-2：1988）《电气用塑料薄膜 试验方法》中 3.2 和 3.3 的规定进行。

It should be cut out 3 layers of outer film when sampling. Usually, it is unnecessary to pre-treat before testing. It also could be performed as per Standard GB/T13541-1992（IEC60674-2：1988）if there is any dissension.

2.2 透光率　Light transmissivity

2.2.1 测试原理 Testing principle

当光线照射到薄膜试样上，进入样品后，部分光线被吸收，部分被透过。透过试样的光通量与照射到试样上

的光通量之比，称为透光率。

$$\text{透光率（\%）}=\frac{\text{透过光通量}}{\text{入射光通量}}\times 100$$

When lamp beam irradiates the specimen, some of beam is absorbed by the specimen, and partially pass through the specimen. Light transmissivity is calculated as per the following formula:

Transmissivity (%) = (Flux of passed beam ÷ Flux of irradiated beam) × 100%

2.2.2 试样 Specimens

将薄膜裁成 50mm×50mm，试样 3 片。 3 pieces of 50mm×50mm

2.2.3 试验设备

推荐使用 WGT-S 型透光率/雾度测定计或性能相当的其他装置。

Testing Apparatus: Recommend to adopt type WGT-S Transmissivity Tester, or some other equivalent testing apparatus.

2.2.4 试验步骤 Testing process

将试样放在样品架上，将试样对着光源并靠近受光器位置，进行测量，读取透光率值。

Put the specimen on a shelf, it should be opposite to light and close with Light Absorbing Apparatus. Then measuring and recording.

2.2.5 试验结果 Test Result

取各试样测量值的算术平均值为试验结果。The average value of all measuring records is as the test result.

2.3 光泽度 Glossiness

按 ASTM D2457《塑料薄膜和薄板镜面光泽的测试方法》中的规定进行。试验仪器采用 WGG-60 型微机光泽度仪。Testing as per Standard ASTM D2457. It should adopt WGG-60 Gloss Degree Tester.

3 检验、标志、包装、运输和贮存 Inspection, marks, packing, transportation and storage

3.1 光亮型聚酯薄膜的出厂检测项目为表 1 中 1、2、3、4、8 项；型式试验项目为表 1 中 1 至 8 项。亚光型聚酯薄膜的出厂检测项目为表 1 中 1、2、3、4、8、9 项；型式试验项目为表 1 中 1 至 9 项。

Routine Test for D250 shall include Item 1, 2, 3, 4, 8 in Table 1, and Type Test shall include Item 1-8 in Table 1.

Routine Test for D253 shall include Item 1, 2, 3, 4, 8, 9 in Table 1, and Type Test shall include Item 1-9 in Table 1.

3.2 同一批树脂，同一工艺条件所制成的同一厚度薄膜，按班产量为一批。

The product with the same operators, raw material, processing condition, type and spec is defined as a batch.

3.3 产品贮存期从出厂之日算起为18个月。

The storage life is 18 months from the date of leaving factory.

3.4 其他按 GB/T13542-1992《电气用塑料薄膜一般要求》中第 7 章的有关规定进行。

Other items shall be as per the stipulation in Chapter 7 of Standard GB/T13542-1992.

4 应用提示 Applications and remarks

4.1 产品适用于胶带、电气绝缘以及乐器制造等领域。

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4.2 产品在使用过程中应轻拿轻放，严禁碰撞、滚动。

Avoid colliding, rolling, scratching while being slit and/or used.

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