

PETG Embossed Decorative Film Inspection Standard

NO.	Inspection Item	Test Method/Basis	Judgment Standard		Inspection Equipment
1	Product size	Width	Slitting width ±2.0mm, coil width ±2.0mm.		Tape measure
		Thickness (Measure 12 points evenly across the width)	Before Embossing (mm) 0.20-0.29	After Embossing (mm)	Micrometer
			0.30-0.39 0.40-0.50	-0.24	
2	Surface flatness	Inspect under sufficient light with the eyes at a 20 ° to 90 ° angle to the board surface.	After surface treatment, place the product on a flat surface for inspection. Obvious unevenness, undulation, or bending (approaching the flatness of the original board) is not allowed.		Visual estimation
3	Effective area of surface treatment	Visual inspection	Front side of the product, 5mm at both ends without oil.		Tape measure
4	Back Coating Effective Area	Visual inspection	The back of the product, 5mm at both ends is not coated with oil.		Tape measure
5	Surface treatment effect	Visual inspection, observe from different angles	The surface should be smooth and have a uniform color. There should be no missed coating, dirt, impurities, or broken oil residue. When illuminated with a strong flashlight from different angles, there should be no dense concave-convex points or dark textures.		Visual estimation
6	Texture	Visual inspection	Product texture, depth, and clarity should be maintained with no obvious difference from the sample.		Visual estimation
7	Protective film	Visual inspection	No residual glue stains, scratches, damage, wrinkles, blistering, air bubbles, oil residue debris contamination, or other defects are allowed. The edges should be trimmed evenly.		Visual estimation
8	Concave-convex points/mottling/crystal points/impurity points	Visual inspection	Points with Φ ≥1.0mm are not allowed.		A visual inspection was performed against the film master dot chart. The assessment was based on a 500mm x 500mm area at a viewing distance of 50 cm.
			1.0mm>Φ≥0.5mm: 1 allowed,		
			0.5mm>Φ≥0.3mm: 2 allowed, point distance ≥150mm, 0.3mm>Φ≥0.15mm: 3 allowed, point distance ≥100mm,		
			Non-dense defective points with Φ≤0.15mm.		
9	Scratch	Visual inspection	Allow 1 scratch with a length ≤30mm and a line width ≤ 0.05mm, invisible when viewed directly, and visible but not palpable when viewed obliquely.		A visual inspection was performed against the film master dot chart. The assessment was based on a 500mm x 500mm area at a viewing distance of 50 cm.
10	Cutout	Visual inspection	Requirements: smooth and straight, without chipping, dog-tooth edges, cracks, film peeling, or other defects.		Visual estimation
11	Rupture	Visual inspection	Not allowed.		Visual estimation
12	Color	GB/T 17657-2022 in 4.34	Visually consistent, with no obvious differences, compared to the standard sample ΔE≤0.5.		Visual inspection, color difference meter
13	Wear resistance	ASTM F2496 ISO 1518-1 ISO 1518-2 GME 60248 D42 1775	≥50r, apply 750g/cm2 pressure to the coating surface, and slight dotted scratches or no scratches on the friction position after 50 cycles.		Reciprocating abrasion testing machine /#0000 steel wool

14	Scratch resistance	Ordinary	/	/	/
		Scratch resistance Customized	4.42 in GB/T17657-2022	1.2N (60g); ① No continuous scratches on more than 90% of the specimen surface; ② Coating thickness ≤ 10um; ③ The front and back sides, transverse and longitudinal winding to a 3-inch core, no cracking is OK	Scratch resistance tester
15	Surface stain resistance		4.43 in GB/T17657-2022	① After 16 hours, there is no obvious discoloration after the stain resistance test.	Huangyu liquid shoe polish, Nescafé coffee, 80℃ water, soy sauce, acetone, cola, aged vinegar, red ink, 6824 oily pen
				② After 30 minutes, there is no obvious discoloration after the acetone test.	
				③ Red ink can be wiped off with clean water.	
				④6824 Oily pen can be wiped off with dry wiping.	
16	Contact Angle		GB/T 30693-2014	Test water with 3 microliter water droplets, contact angle ≥88 °.	Water contact angle tester
17	Adhesion	Convention al	4.57 in GB/T17657-2022	≥4B, 3 times for each of the left, middle, and right hundred-grid tests.	3M#600/681 (alternative 610) test tape/cross cutter
		Boiling in water		/	
18	Yellowing resistance (168hUVA340)		GB/T23983-2009 4.32 in GB/T17657-2022	△E≤3 (Surface oil: △E≤0.7).	UV yellowing resistance test chamber
19	Lightfastness		4.31 in GT/T17657-2022	≥ Level 3.	Xenon arc lamp test chamber, 8-level blue wool standard sample, gray sample card
20	Rewinding		Packaging operation specification	1250mm × 3-inch compression-resistant foam tube or polished tube, smooth surface, no unevenness, neat winding, no running edges, 250 meters/roll, protective film facing outward.	Visual estimation
21	Product packaging		Packaging operation specification	The tape is dark blue. After processing, first wrap with stretch film, then wrap the product horizontally with tape 3-5 times to prevent the product from shifting sideways. The outer packaging is wrapped with pearl foam packaging paper printed with the LOGO, and both ends of the product are sealed and packaged with paper protective panels and hardened corner protectors. The packaging should be complete and undamaged.	Visual estimation
22	Product Identification Sample		Visual inspection	① On the outer packaging paper, aligned with the top center position directly above the logo and below the corner protectors, affix one large label (58mm*218mm, 3 labels in total) with identical information, centered on the back of an A4 sample (210mm*297mm). The labeling should be standardized, comprehensive, clear, and accurate.	Visual estimation
				② The label should include the following information: Product Name, Product Series, Protective Film Name, Product Article Number, Product Specifications, Product Quantity, Base Material Number, Surface Treatment Number, Production Date, and other information.	
				③ Label information, physical object, A4 sample, the three must be consistent.	