PETG High Gloss 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 the position of 12 points evenly in the width direction)	0.10<d≤0.20 ±0.01	Micrometer
			0.20<d≤0.40 ±0.02	
			0.40<d≤0.80 ±0.03	
2	Surface flatness	Check with eyes at 20° to 90° to the board surface under sufficient light	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	Surface treatment effect	Q/WSC-PK-JY-040 Visual inspection, observe from different angles	Good leveling, smooth surface, no missing coating, oil nests, rainbow patterns, orange peel patterns, flow patterns, water ripple patterns, incomplete leveling, dirt, broken oil residue, and no UV agent on the reverse side.	Visual estimation
5	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
6	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.	
7	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.
8	Cutout	Visual inspection	Requires smooth and straight, no chipping, dog-tooth edges, cracks, film peeling, and other defects.	Visual estimation
9	Rupture	Visual inspection	Not allowed.	Visual estimation
10	Color deviation	GB/T 17657-2022 in 4.34	Visually basically consistent, with no obvious differences. The standard sample at the comparison table is △ E≤0.5.	Visual inspection, color difference meter
11	Coating hardness	GB/T 17657-2022 in 4.58	Hardness ≥H,	Electric pencil hardness tester / weight
			500g weight, Mitsubishi pencil 45° scratch, Note: The upper end is sampled at the 100mm position for testing, and one sample is taken from the left, middle, and right for testing. Each sample is tested 5 times, and it is qualified if there are no scratches/scratches at least 4 times.	
12	Coating thickness	GB/T 13452.2-2008 ISO 2808:2007	≤10um.	Coating thickness gauge
13	Wear resistance	ASTM F2496 ISO 1518-1 ISO 1518-2 GME 60248 D42 1775	≥50r The coating surface is subjected to 750g/cm2 pressure, and after 50 cycles, there are slight dot-like scratches or no scratches at the friction position.	Reciprocating abrasion testing machine /#0000 steel wool

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14	Scratch resistance	Ordinary	/	/	/
		Scratch resistance Customized	4.42 in GB/T17657-2022	1.2N (60g), ① More than 90% of the specimen surface has no continuous scratches, ② Coating thickness ≤10um, ③ Front and back sides, horizontal and vertical winding directions on 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. 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.	Huang Yu liquid shoe polish, Nestle, coffee, 80℃ water, soy sauce, acetone, cola, aged vinegar, red ink, 6824 oily pen
16	Contact Angle		GB/T 30693-2014	Test water with 3 microliter water droplets, contact angle ≥ 88	Water contact angle tester
17	Adhesion	Conventional	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 tape. After processing, first wrap it with stretch film, and then wrap the product horizontally with tape for 3-5 turns to prevent the side of the product from being misaligned. The outer packaging is packaged with pearl foam packaging paper printed with LOGO, and both ends of the product are sealed and packaged with paper corner protectors and hardened corner protectors. The packaging should be complete and undamaged.	Visual estimation
22	Product identification samples		Visual inspection	① Paste one large label (58mm*218mm, 3 in total) with all the same information on the front of the outer packaging paper logo, flush with the bottom of the corner protector, at the top middle position, and on the back of the A4 sample (210mm*297mm) in the center position. The identification should be standardized, and the content should be comprehensive, clear, and correct.	Visual estimation
				② The content on the label should include: product name, product series, product color, protective film name, product item 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.	