

## Mechanical & Technical Test Results

No.	Test Item	Test Method	Condition	Result
1	Heat Deflection Temperature	ASTM D648-07	Heating rate: 120°C/h Load: 1.82MPa	102.8°C
2	Peel Strength	ASTM D903-98	Separation Speed: 152.4mm/min	0.975kg/mm
3	Chalking Test	ASTM D4214-89	Max. 8 units after 4000h	No Chalking
4	Flexibility Test : T-Bend	ASTM D4145-83		1-T
5	Tensile Strength	ASTM E8-04	Specimen: D638 Type 1 Speed: 0.5 in/min Speed at yield point: 100kpsi/min	51.1MPa
6	Tensile Strength at Yield			51.1MPa
7	Elongation at Break			18%
8	Abrasion Resistance	ASTM D968-05	Falling Sand	A=106.85L/mil (see note 1)
9		ASTM D968-93	Falling Sand	20 litres/mil per: AAMA 70 litres/mil actual value
10	Coefficient of Linear Thermal Expansion	ASTM D696		247.3 µm/m-°C (see note 2)
11	Thermal Conductivity	ASTM C518-04	Mean Temp: 30±3°C	0.1210 W/m-K
12	Flexural Modulus (4-point)	ASTM C393-00	Specimen: 40mmx250mm Span: 200mm, Distance Between two loading points: 67mm Speed 10mm/min	332 MPa
13	Punch Force	ASTM D732-02	Specimen: 50mm x 50mm x 3.9mm Speed: 1.25mm/min	6.36 KN
14	Shear Strength			18.1 MPa
15	Adhesion Strength	ASTM D903-99	Specimen: 25mm width Test Speed: 152.4mm/min	0.80 kgf/mm
16	Dupon Impact	Supplied by client	1kg weight, 500mm height	No cracking
17	Colour Retention	ASTM D2244-93		Max.5 units after 4000h
18	Pencil Hardness	ASTM D3363-92a	Test Pencil: Mitsubishi	3H (see note 3)
19	Flexibility Test: T-Bend	ASTM D4145-83	Specimen: 50mm x 100mm Bend the specimen round itself	Minimum T bend OT
20	Dry Adhesion	ASTM D3359-02 AAMA 2605-2005	Spacing: 1mm Tape: 3M *601#	4B (see note 4)
21	Wet Adhesion		After immersed in 38°C deionized water for 4h Spacing: 1mm Type: 3M *601#	4B (see note 4)
22	Boiling Water Adhesion		After immersed in boiling deionized water for 20 min Spacing: 1mm Tape: 3M *601#	4B (see note 4)

## Mechanical & Technical Test Results

No.	Test Item	Test Method	Condition	Result
23	Chemical Resistance	ASTM D1308-02	Applied 10 drops of 10% HCl examined after 15 min at room temp	No blistering or appearance change
24	Chemical Resistance	ASTM D1308-02	Applied 10 drops of 10% H <sub>2</sub> SO <sub>4</sub> examined after 15 min at room temp	No blistering or appearance change
25	Chemical Resistance	AAMA 2605-2005 section 7.7.2	Applied 1300mm <sup>2</sup> and 12mm thickness mixed mortar to specimen, examined after exposure in 38°C 100% RH for 24h	Mortar can be removed easily, residue can be removed by damp cloth, No adhesion loss or appearance change
26	Chemical Resistance	ASTM D2248-73 section 7.7.2	38°C immersed in detergent for 24 h	No adhesion loss No blistering No significant visual change
27	Resistance to High Humidity	AAMA 2605-2005	38°C, 100% RH, Exposure period: 3000h	No blistering or appearance change
28	Salt Spray Test	ASTM B117-07	Salt solution concentration: 5%NaCl by mass Chamber temperature: 35±1°C Volume of salt solution collected: 1-2 ml/(80cm <sup>2</sup> h) PH of collected solution: 6.5~7.2 Exposure period: 3000h	Rating: 10 (see note 5)
29	Humidity-Thermal	ASTM 2246-65	10 cycles: 24hrs*100%RH 37.8, 2 hrs*18 4 hrs*24	No blistering or appearance change
30	Reverse Impact-Crosshatch	ECCA 11-5		No pick-off
31	Formability: T-bend	ECCA 11-19 ASTM D1737-62		2T, no cracking
32	Xenon-Arc Weathering	ASTM G155-05a	Irradiance: 0.35W/(m <sup>2</sup> -nm) @340nm 102 min light at 63°C BPT 50%RH 18 min light and water spray Exposure duration: 4000h	Colour difference ΔE*ab = 4.1 (see note 6)  Gloss (60°) Retention: 85.7% (see note 7)

- Note:
- In the test item 8,  $A=V/T$ , where V=volume of abrasive used, L, T=thickness of coating, mils
  - In the test item 10, brand and model of test instrument: ATQ400; Force: 0.05N  
Purge gas: Nitrogen, Purity 99.9995%, flow rate 100ml/min
  - According to ASTM D3363-05, 6H is the hardness and 6B is the softness
  - According to ASTM D3359-02 method B, in the adhesion classification: 5B best, 0B worst
  - Refer to AAMA 2605-2005, rating 10 best, rating 0 worst
  - Refer to ASTM D2244--07, ΔE\*ab values were measured by sphere spectrophotometer.  
Use D65 standard light source with 10 observer
  - Gloss Retention (%)=(60°gloss exposed/60°gloss unexposed)x100%