

**SEVEN brand Alloy 5005 aluminum composite panel test report**

**surface test( PVDF coating)**

**dimensions test**

| Test item           | standard index | standard method |
|---------------------|----------------|-----------------|
| length tolerance    | +/-3mm         | GB/T17748-2008  |
| width tolerance     | +/-2mm         | GB/T17748-2008  |
| thickness tolerance | +/-0.2mm       | GB/T17748-2008  |
| diagonal tolerance  | ≤5mm           | GB/T17748-2008  |
| warp tolerance      | ≤5mm/m         | GB/T17748-2008  |

**coating test**

| Test item                                  | standard index   | standard method              |
|--|--|------------------------------|
| aluminum thickness                         | 0.5mm  |                              |
| Alloy /temper of aluminum                  | 5005 H22( AlMg1)   |                              |
| coating thickness                          | two coating ≥23<br>three coating ≥25                                     | ASTM B487-85 GB/T17748-2008  |
| gloss                                      | 25-80  | ASTM D523-89                 |
| gloss tolerance                            | ≤10  | GB/T9754                     |
| color difference                           | ΔE≤2.0   |                              |
| pencil hardness                            | ≥HB  | ASTM D3363-05 GB/T6739       |
| coating flexibility( T bend)               | ≤2T  | ASTM D4145-83 GB/T17748-2008 |
| mandrel bend test                          | Mandrel diameter for resistance to cracking: <3mm                        | ASTM D522-93a                |
| coating adhesive                           | grille space 1mm, tape 3M 898#   | ASTM D3359-08                |
|  | grille class 0   | GB/T9286                     |
|  | circle class 1   | GB/T9286                     |
| impact resistance kg.cm                    | ≥50kg.cm no depainting, no crack   | GB/T1732                     |
| Cuping test                                |  | ASTM D4145-83                |
| grinding resistance L/μm                   | ≥5   | GB/T4957                     |
| boiling water resistance<br>98°C ± 2°C, 2h | no change  | GB/T17748-2008               |
| pollute resistance                         | ≤5%  | GB/T9780                     |
| nitric acid resistance                     | no bubble, pulverization color difference ΔE≤5.0                         | GB/T11942                    |
| hydrochloric resistance                    | 5% hydrochloric, 24h no change   | GB/T17748-2008               |
| alkaline resistance                        | 5% sodium hydroxide 24h no bubble, pulverization color difference ΔE≤2.0 | GB/T11942                    |
| oil resistance                             | 20# oil, 24h no change   | GB/T17748-2008               |
| solvent resistance                         | no aluminium exposed, Butanone 200 times                                 | GB/T17748-2008               |
| scrub resistance                           | ≥10000 cycles  |                              |
| salt spray resistance                      | 4000h no change  | GB/T1771, GB/T1740           |
| detergent resistance                       |  | ASTM D2248-01a               |

| physical performance                                   |  |  |
|--|--|--|
| Test item  | standard index                                 | standard method                            |
| face density   | 5.5kg/m <sup>2</sup>                           | ASTM D5947-06                              |
| face density tolerance                                 | ±0.5kg/m <sup>2</sup>                          |  |
| bending strength                                       | ≥100MPa  | GB/T17748-2008                             |
| bending elastic modulus                                | ≥2.0x10 <sup>4</sup> Mpa                       | GB/T17748-2008                             |
| 180° peel strength                                     | ≥7.0N/mm                                       | BG/T17748-1999                             |
| peel strength (separation speed:152.4mm/mm)            | average≥130 N.mm/mm<br>min≥120 N.mm/mm         | GB/T17748-2008                             |
| temperature cycle resistance - 40°C to 80°C, 50 cycles | peel strength change ≤10%                      | GB/T17748-2008                             |
|  | coating adhesive 1 class                       |  |
|  | surface no change                              |  |
| shearing strength/ Mpa                                 | ≥22.0Mpa                                       | ASTM D732-02, GB/T17748-2008               |
| thermal expansion coefficient                          | ≤4.00 x 10 <sup>-5</sup> °C <sup>-1</sup>      | GB/T17748-2008                             |
| coefficient of liner thermal expansion                 | N2: 100ml/min                                  | ASTM E831-06                               |
| heat distortion temperature                            | ≥95°C  | ASTM D648-07 GB/T17748-2008<br>GB/T 1634.2 |
| hot water resistance                                   | 98°C+/2°C,2h, no change                        | GB/T17748-2008                             |
| fire resistant   |  | BS476 part 6 and part 7                    |
|  | class c  | GB 8624                                    |
| flexural strength                                      | 127*12.80*4.04mm speed:<br>1.7mm/min span:64mm | ASTM D790-07                               |
| flexural modulus                                       | 127*12.80*4.04mm speed:<br>1.7mm/min span:64mm | ASTM D790-07                               |
| tensile strength                                       | specimen: type 1 speed:<br>5mm/min             | ASTM D638-03                               |
| tensile strength at yield                              | specimen: type 1 speed:<br>5mm/min             | ASTM D638-03                               |
| wind pressure deformation                              | 448Kg/m <sup>2</sup>                           | ASTM E330-84*                              |
| water absorb   | 0%   | ASTM D570                                  |
| water leakage  | 4.48X10 <sup>-4</sup> Kg/m <sup>2</sup>        | ASTM E331-86                               |