



Qingdao Jiahua Plastics Co.,Ltd.

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Technical Data Sheet

Polyvinyl Butyral Interlayer

-----SAFLAYER®PVB Film

SAFLAYER®PVB Film is a macromolecule material produced by the polyvinyl butyral, plasticizer and additives through extrusion. SAFLAYER®PVB Film is semitransparent membrane, without the impurity. It occupies the good flexibility, smooth surface and a certain roughness. SAFLAYER®PVB Film also is well-sticking to inorganic glass and becoming the best gluey material in the world of making laminated safety glass at present.

Features:

Extremely high safety. The SAFLAYER®PVB Film withstands penetration from impact. Even if the glass cracks, splinters will adhere to the interlayer and not scatter in comparison with other higher strength to resist shock, burglary, burst and bullets.

Sound control. SAFLAYER®PVB Film has the property of attenuating acoustic wave propagation which make the laminated glass block sound transmission and reduce noise.,

Anti-UV. PVB Laminated glass can block 99% UV, so it can avoid the inner furniture and displays from fading and aging..

Decorative. Laminated glass with colorful SAFLAYER®PVB Film will beautify the buildings and harmonize their appearances with surrounding views which meet the demand of architects.

Architectural Applications:

In buildings, laminated glass with SAFLAYER®PVB Film protects occupants from accidental glass impact, fallout or breakage due to storms, earthquakes and other natural disasters. Widely used in the indoor decoration and furniture, show case, bank, buildings etc.

Automotive Applications:

For automotive applications, laminated windscreens featuring SAFLAYER®PVB Film enhances passenger safety in the event of collisions. Increasingly, automotive manufacturers are benefiting from other attributes of laminated glass in terms of passenger comfort with quieter cabins, UV screening, and the convenience of head up displays. Plus, acoustic windscreens provide the added benefit of reducing glass usage which translates into improved mileage performance by reducing car weight.



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Specification and technical data of the architectural pvb

Thickness: 0.38mm length: 350m width: 600-2440mm
 Thickness: 0.76mm length: 200m width: 600-2440mm
 Thickness: 1.14mm length: 150m width: 600-2500mm
 Thickness: 1.52mm length: 100m width: 600-2500mm
 Color: clear, green, blue, milky white, porcelain white, grey, yellow, red, etc.

| Specifications | | 0.38mm | 0.76mm | 1.52mm |
|---|---|--|---|---|
| Appearance | Appearance | Smooth surface without nick or crease | | |
| | Crystallite and watermarks | The crystallite Diameter $\geq 2.0\text{mm}$ not allowed, and the watermarks not visible | | |
| | Visible defects (impurities, bubbles, oil, drop etc.) | Diameter:0.5mm minimum (10 defects maximum per 350m) | Diameter:0.5mm minimum (6 defects maximum per 200m) | Diameter:0.5mm minimum (4 defects maximum per 100m) |
| | | Diameter more than 0.5mm for defect must be marked on film; densely existed defects* more than diameter of 0.5mm must be noted as one defects more than 0.5mm. The kinds and places should be mentioned in the packing list. | | |
| Thickness and size | Thickness tolerance (mm) | $\pm 0.02\text{mm}$ | $\pm 0.04\text{mm}$ | $\pm 0.08\text{mm}$ |
| | Uniformity ratio | Landscape or portrait thickness tolerance must less than $15\ \mu\text{m}$ in a distance of 25mm; must less than $25\ \mu\text{m}$ in 50mm, and must less than $50\ \mu\text{m}$ in 100mm. | | |
| | Length (m) | \cong normal length | | |
| | Width (mm) | \cong normal width | | |
| Roughness Rz | | 15-70 | | |
| Moisture content (%) | | 0.35~0.55 | | |
| Heat shrinkage rate (60°C/15min)(%) | | $\cong 12.0$ | $\cong 8.0$ | $\cong 5.0$ |
| Pummel value | | ≥ 7 | | |
| Light transmittance (%) | | $\cong 80$ | | |
| Haze (%) | | < 0.6 | | |
| Tensile strength (MPa) | | $\cong 20.0$ | | |
| Breaking elongation (%) | | $\cong 200$ | | |
| Yellowness index (%) | | $\cong 10$ | | |
| *: Densely existed defects refers to the defects should be ≥ 10 in the circular of 300mm diameter, and the separation distance of the defects should be $\cong 5\text{mm}$. | | | | |



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Specification and technical data of the automotive pvb

Clear Thickness: 0.76mm Length: 200m Width: 600-2400mm

Color Band: Blue on clear, green on clear, blue on light green, green on light green

Thickness: 0.76mm Length: 200m Width:600-1830mm

Shade width:0-230mm

| Items | | Specifications | 0.76mm |
|---|---|--|-----------------------|
| Appearance | Appearance | The color band should be evenly distributed and so as the width of transitional region. | |
| | Crystallite and watermarks | The crystallite Diameter $\geq 2.0\text{mm}$ not allowed, and the watermarks not visible | |
| | Visible defects (impurities, bubbles, oil, drop etc.) | In 200m The diameter of the defects more than 0.5mm must be less than 6 places | |
| Diameter more than 0.5mm for defect must be marked on film; densely existed defects* more than diameter of 0.5mm must be noted as one defects more than 0.5mm. The kinds and places should be mentioned in the packing list. | | | |
| Thickness and size | Thickness tolerance (mm) | | $\pm 0.04\text{mm}$ |
| | Uniformity ratio | Landscape or portrait thickness tolerance must less than $15\ \mu\text{m}$ in a distance of 25mm; must less than $25\ \mu\text{m}$ in 50mm, and must less than $50\ \mu\text{m}$ in 100mm. | |
| | Length (m) | | \cong normal length |
| | Width (mm) | | \cong normal length |
| Roughness Rz | | | 15-70 |
| Moisture content (%) | | | 0.35~0.55 |
| Heat shrinkage rate (60°C/15min)(%) | | | $\cong 8.0$ |
| Pummel vlaue | | | 3~7 |
| Light transmittance (%) | | | $\cong 85$ |
| Haze (%) | | | < 0.4 |
| Tensile strength (MPa) | | | $\cong 20.0$ |
| Breaking elongation (%) | | | $\cong 200$ |
| Yellowness index (%) | | | $\cong 10$ |
| *: Densely existed defects refers to the defects should be $\cong 10$ in the circular of 300mm diameter, and the separation distance of the defects should be $\cong 5\text{mm}$. | | | |



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Packing, Storage and Shelflife:

The package: the SAFLAYER®PVB Film is insulated with PE film partition, cased into an aluminum foil bag, then vacuum sealed, and lastly into wood box or card drum. There should be quality certificate, packing list in the package. The marks of moisture proof, shock proof and sunlight proof should be labeled.

Storage: the product should be stocked in clean warehouse and normal temperature. It is forbidden to leave it under direct sunlight. As for the broken or opened package, they should be stocked under temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and in relative humidity of 20%-40%.

Shelf life: under normal atmospheric temperature, if well-packaged, the shelf life can be 2 years.

Disclaimer:The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchant ability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. This information should be used to make an independent determination of the methods to safeguard the workers and the environment.