

## Characteristics of polymeric interlayer films and its impact on acoustical performance of laminated glass

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## ABSTRACT

The advantages of noise attenuation, easy fabrication, and compatibility with glass have promoted the application of PVB (polyvinyl butyral) interlayer films for laminated glass. Though PVB laminated film shows moderate performance in sound absorption/insulation, much of the noise is still transmitted through a glass in high-speed train, HEMU-430X. To improve sound attenuation via a laminated glass, it is beneficial to find a relationship between characteristics of interlayer films and sound absorption/insulation performance. The chemical and physical properties of representative polymer films (PMMA, PC, EVA as well as PVB) were analyzed based on differential scanning calorimetry, dynamic mechanical analysis, and thermomechanical analysis. Further, acoustical performance, i.e. absorption coefficient and transmission loss, was measured using impedance tube and reverberation method.

Keywords: Sound insulation, Interlayer film, Laminated glass

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