Sound absorption properties of Expandable polystyrene bead filled PU foam

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Flexible polyurethane foam is widely used in automobile industrial application such as sound absorbing and cushioning materials because of its light weight and porous behavior, and expandable polystyrene (EPS) bead has also similar characteristic properties. In this study, PU composite foams including EPS beads are fabricated to examine the sound absorption properties and compressive strength. EPS had little effect on cellular morphology. As the content increased, the sound absorption coefficient was shifting to low frequency region. That's because micro cavity of EPS bead and pinhole on its surface induce sound wave to inner closed cell. The sound absorption performance has been improved below 1500 Hz. Furthermore, the compressive strength of EPS/PU increased rapidly as the content increased.