

### Relationship between cell morphology and sound absorption

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Polyurethane (PU) foams are widely used in diverse industries due to the light weight and ease of production. Especially, flexible PU foams are used as sound absorbing materials of automobiles because of their high sound absorption coefficient. The sound entering PU foams is reduced by the collisions between the cavity walls and air molecules. Therefore, to achieve high sound absorption efficiency, it is important to have fine cell morphologies of PU foams. Crushing process is a process that opens closed pores of PU foams artificially. In this study, crushing process was performed with various crushing times (the time between the demold of PU foams and the beginning of the crushing process). Sound absorption coefficient was obtained with an impedance tube. Scanning electron microscope was used to investigate the relation between crushing times and the morphology of PU foams. Dynamic mechanical analysis was used to analyze the viscoelasticity of PU foams with different crushing times.