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The Prediction of Sound Absorbing Coefficient for Multi-Layer Non-Woven

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Abstract : Automotive interior material consisting of several material layers has the sound-absorbing function. It is difficult to predict sound absorbing coefficient because of several material layers. So, many experimental tunings are required to achieve the target of sound absorption. Therefore, while the car interior materials are developed, so much time and money is spent. In this study, we present a method to predict the sound absorbing performance of the material with multi-layer using physical properties of each material. The properties are predicted by Foam-X software using the sound absorption coefficient data measured by impedance tube. Then, we will compare and analyze the predicted sound absorption coefficient with the data measured by scaled reverberation chamber and impedance tubes for a prototype. If the method is used instead of experimental tuning in the development of car interior material, the time and money can be saved, and then, the development effort can be reduced because it can be optimized by simulation.

Keywords : multi-layer nonwoven, sound absorption coefficient, scaled reverberation chamber, impedance tubes
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