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### **Uncertainty of Acoustical Material Characteristic Measurements**

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The experimental determination of the acoustic properties of sound absorption materials depends on numerous factors. The accuracy level in the determination of each property depends, for example, on the measurement apparatus and the type of material. The objective of this work is to present a study about the main sources of uncertainty in the measurement of properties such as sound absorption coefficient, acoustic impedance, flow resistivity and porosity. The uncertainties of the measurement apparatus of each property are quantified. The uncertainty of the materials heterogeneity is also assessed and its individual contribution highlighted. Important aspects of the Standards ASTM C 522 and ISO 10534-2, which present, respectively, recommendations and a procedure for flow resistivity and sound absorption measurements, are discussed. The methodology to calculate the uncertainty of each property is discussed with emphasis on the relevancy of each uncertainty source.