

# Abstract

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## **Measurement Method of Broadband Dynamic Characteristics of Viscoelastic Material for Compliant Coating**

An improved method to measure the dynamic viscoelastic properties of elastomers is proposed. The method is based on the analysis of forced oscillation of a cylindrical sample loaded with inertial mass. No special equipment instrumentation other than the ordinary vibration measurement apparatus is required. Typical measurement of the viscoelastic properties of a silicone rubber Silastic® S2 were measured over the wide frequency range from 10 Hz to 3 kHz under the action of wide region of deformation from 10<sup>-4</sup>% to 5%. It was shown that modulus of elasticity  $E^*$ ; loss tangent  $\tan \delta$  fall on the single curves when the ratio of load mass to sample mass changed from 1 to 20.