Mathematical Model of the Frequency Interaction of Gas with Porous Material

A.V. Medvedeva, D.M. Mordasov

Tambov State Technical University, Tambov

Key words and phrases: bulk material; frequency method; frequency response function; measurement; pneumodynamic measuring system; porosity; resonance.

Abstract: The paper presents the mathematical description of physical processes that occur under harmonic disturbing effect of gas on a porous material placed in an isolated air chamber. We’ve developed the mathematical model that relates the parameters of the porous structure with the pressure in the measuring system; the given model is the major method of measuring the porosity of materials.

© A.V. Medvedeva, D.M. Mordasov, 2011