Notes on Sound Absorption Technology

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This text covers a variety of topics related to the propagation and absorption of sound. The main emphasis is on the properties of sound absorptive materials and their effectiveness in absorbing sound under a variety of conditions. The chapters on sound-absorptive structures include sound absorption by screens (including multiple screens and variable spacing), the properties of rigid and flexible porous materials (including both open and closed cell materials), the effects of perforated and wire mesh facings, and sound propagation in lined ducts. The sections on measurement of the properties of sound absorptive materials include measurement of flow resistance and measurement of complex compressibility. Other chapters in the book cover the effects of viscosity and heat conduction on propagation of sound, sound absorption in wind tunnels, resonator design, the theory of transmission matrices, and fundamentals of acoustics.

The book is accompanied by three high-density 3 1/2 inch disks which contain 38 executable programs. These programs, written for IBM-compatible personal computers running under DOS, allow the user to make a variety of calculations of the sound absorptive properties of the structures described above. A 64-page section of the book is devoted to examples of the use of the programs.