ABSTRACT

The pressure dependence of the elastic constants of dental amalgam has been examined in the 0-50 kilobar range using a solid media, pressure apparatus coupled with an ultrasonic interferometer. Computer analysis of the measured longitudinal and shear ultrasonic wave velocities yields the pressure dependence of the bulk, shear and Young's moduli and Poisson's ratio. Samples were prepared with varying compositions from micro-cut and spherical dental alloys. The elastic behavior of these samples can be directly related to the sample structure and composition as well as to the manipulation during preparation. In addition, an estimate can be made of the volume concentration of porosity.