

Title Dielectric Properties of Parchment Coffee  
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### Abstract

This paper discusses the variation of relative permittivity, dielectric loss factor and loss tangent, and the a.c. conductivity of three varieties of parchment coffee (*Coffea arabica* L.) in the frequency range from 75 kHz to 5 MHz, at  $21.0 \pm 0.9^\circ\text{C}$  and  $63 \pm 1\%$  relative humidity. Included are curves showing the variation of these four dielectric properties on moisture (11.0 to 23.1% w.b.), bulk density ( $326\text{--}455 \text{ kg m}^{-3}$ ), and variety (*Catuaí Vermelho*, *Catuaí Amarelo* and *Mundo Novo*). The importance of the determination of the dielectric properties of parchment coffee for the indirect measurement of its moisture content, and the use of on-line moisture meters in automatic control of coffee dryers, are discussed briefly. Also included are definitions of the dielectric properties of interest in measuring the moisture content of granular materials. The variation of relative permittivity on frequency, moisture content, density and variety was more regular compared to the behaviour of the other dielectric properties in that it continuously increases with moisture and bulk density and decreases with frequency. Dielectric dispersion and its relation to water binding mechanisms in grain are also discussed. The conclusion, based on experimental values and data found in literature, is that of all dielectric properties the relative permittivity should provide less error in parchment coffee moisture content determination.