Abstracts

Microwave Diagnosis of Rubber Compounds

S.I. Ganchev, J. Bhattacharyya, S. Bakhtiari, N. Qaddoumi, D. Brandenburg and R. Zoughi. "Microwave Diagnosis of Rubber Compounds." 1994 Transactions on Microwave Theory and Techniques 42.1 (Jan. 1994 [T-MTT]): 18-24.

The results of a study investigating the dielectric properties of rubber compounds and their constituents in the frequency range of 5 to 24 GHz are presented. A completely filled short circuited waveguide technique was used to conduct these dielectric measurements. The influence of carbon black content in rubber was investigated for carefully prepared rubber samples. The results showed that for all frequencies, the dielectric constant increases as a function of increasing carbon black content. The variation of dielectric constant values decreases as frequency increases. The presence of curatives in uncured rubber samples was also detected, which indicates the sensitivity of microwaves to the chemical reaction triggered by curatives.

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