

# Study of Electromagnetic Radiation Absorption Characteristics of Heterogeneous Charcoal-Containing Materials

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Abstract: The aim of the presented research was to establish new regularities of change of electromagnetic radiation absorption coefficient values in frequency range 0.7–17.0 GHz of the materials based on powdered charcoal, impregnated to the saturation by the alkaline earth chloride aqueous solution, depending on the following: 1) electromagnetic radiation frequency value; 2) charcoal type (non-activated wood charcoal, activated wood charcoal, activated coconut charcoal). These materials were heterogeneous and flexible ones. Their outside layers were made on the base of polymer plates and meshes. The studied materials inside layers were made on the base of charcoals, impregnated to the saturation by the alkaline earth chloride aqueous solution. Such components are electrical conductive ones. It has been established, that electromagnetic radiation absorption coefficient values of the studied materials are more than 0.5 in frequency bands 1.45–4.0 GHz,

6.0–17.0 GHz. The minimum values of electromagnetic radiation absorption coefficient (around 0.9) have been registered in frequency band 6.5–14.0 GHz for the materials based on powdered wood charcoals. Due to these facts these materials have been classified like wideband electromagnetic radiation absorbers. They have been recommended for use in course of development of anechoic chambers for performing microwave measurements in S, X and K u bands.

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