

DIELECTRIC AND PHYSICOCHEMICAL PROPERTIES OF INTERCALATED NONTRONITE

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Nontronite belongs to phyllosilicates group. It is an example of layered clay minerals of prominent sorption properties. Layered minerals form structures consisting of tetragonal and octahedral sheets. Our team focused on the unique properties of aluminosilicates and used them for modification using solvents with a constant dipole moment. The process is called intercalation.

Products of intercalation have very promising properties. Previously we proved that intercalated kaolinite[1,2] or halloysite[3] can effectively absorb electromagnetic wave. It could be used for protection against negative impact of electromagnetic pollution. Characterization of nontronite composites was made by means of dielectric spectroscopy, thermogravimetry and powder diffraction. As a result, very interesting dielectric permittivity results have been obtained over a wide frequency range.

[1] K. Leluk, K. Orzechowski, K. Jerie, A. Baranowski, T. Słonka, i J. Głowiński, „Dielectric permittivity of kaolinite heated to high temperatures”, Journal of Physics and Chemistry of Solids, t. 71, nr 5, s. 827–831, maj 2010.

[2] K. Orzechowski, T. Słonka, i J. Głowinski, „Dielectric properties of intercalated kaolinite”, Journal of Physics and Chemistry of Solids, t. 67, nr 5–6, s. 915–919, maj 2006.

[3] M. Adamczyk, M. Rok, A. Wolny, i K. Orzechowski, „Dielectric properties of halloysite and halloysite-formamide intercalate”, Journal of Applied Physics, t. 115, nr 2, s. 024101, sty. 2014.

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