

## Two types of adsorbed water in natural montmorillonites at low temperatures by dielectric spectroscopy

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### Abstract

Dielectric spectroscopy was applied to natural clay mineral - montmorillonite with the exchangeable K<sup>+</sup> and Ni<sup>2+</sup> cations where the effect of water adsorption in the samples on the dielectric response was examined in the temperature from -115°C to -75°C and frequency from 1 Hz to 1 MHz ranges. Two relaxation processes (1 and 2) were revealed. The process 1 was related to the adsorbed ordered water structures formed on the interior surface of interlayer channels while the relaxation process 2 was attributed to the disordered water structures built between two surface water monolayers.

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