

Abstract Submitted
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The existence of an isopermittive point of water at low frequencies HILDA MERCADO, ABRIL ANGULO, Cinvestav-Monterrey — Water has been studied extensively since the last past century and it continues to be a subject of great interest because it has special properties and a relevant role in biological functions. One of the most used techniques to study water is the dielectric spectroscopy. Normally, the studies with this method are carried out at frequencies higher than 1 MHz. We have studied the relative permittivity of water at low frequencies (100 Hz to 1 MHz), and we found that this varies strongly as a function of the frequency. In addition, we found a specific frequency where this parameter is independent of temperature and we called it the isopermittive point. Below this point the relative permittivity increase with temperature, above, it decreases. Our explanation of this behavior is that water can be considered as a system of two species: dipoles and ions. The first obey the Maxwell-Boltzmann statistics, while the second causes the Maxwell-Wagner-Sillars effect. At the isopermittive point the effect of both mechanisms in the relative permittivity compensate each other.

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