$$\varepsilon_r = \varepsilon_0^r \left(\frac{M_{water} - \sum_i^{n_{cat}} w_i C_i}{M_{water}} \right) + \varepsilon_r^{min} \left(\frac{\sum_i^{n_{cat}} w_i C_i}{M_{water}} \right)$$

The relative permittivity varies with cation concentration

ε_0^r the relative permittivity 80.1

ε_r^{min} the dielectric constant of water under the condition of dielectric saturation, 6

M_{water} the molarity of water at room temperature taken as 55 M

w_i the total number of water molecules held by the ion i

Constant	Value
w_{K+}	4
w_{Li+}	5
w_{Na+}	5
w_{Cs+}	3
w_{H+}	10

Reference

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