

electrocapillary equation

A form of the Gibbs adsorption equation which includes an expression of the phenomenon of *electrocapillarity*:

$$s dT - \tau dp + d\gamma + \sigma^\alpha dE + \sum \Gamma_j d\mu_j = 0$$

where s is the surface excess of entropy of unit area of *interphase*, T is the temperature, τ is the thickness or excess volume of unit area of the interphase, p is the external pressure, γ is the interfacial tension, σ^α is the free surface charge density on phase α (areal amount of charge on the surface of phase α), E is the generalized potential, Γ_j is the surface excess, μ_j is the chemical potential and j is an electrically neutral component of one or other of the phases; the sum is over all the components but one in each phase.

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