

electrode current density, j

If the charging current is negligible, in the case of a single *electrode reaction*, the electrode current density (c.d.) of the *electric current* flowing through the electrode is related to the flux density of a species B by the equation:

$$j = n\nu_{\text{B}}^{-1}F(N_{\text{B}})_e$$

where $(N_{\text{B}})_e$ is the normal component of the vector N_{B} at the electrode-solution interface, n is the charge number of the electrode reaction, ν_{B} the *stoichiometric number* of species B. The ratio n/ν_{B} is to be taken as positive if the species B is consumed in a cathodic reaction or produced in an anodic reaction. Otherwise it is to be taken as negative. With the convention that the normal distance vector points into the electrolytic solution, a cathodic current is then negative, an anodic current positive.

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