current density

The current density j_B of a species **B** in a given point of the solution is obtained by multiplying the flux density of that species at the given point by the Faraday constant F and by the charge number z_B of the species:

$$j_B = z_B \, F \, N_B$$

where j_B is a vector which indicates the direction in which the charges transported by the species **B** flow and which gives the number of these charges going through a plane oriented perpendicular to the vector, divided by time and by area, and N_B is the flux density of a minor constituent of the solution with respect to a fixed frame of reference.
See also: electric current density

Source:
PAC, 1981, *53*, 1827 *(Nomenclature for transport phenomena in electrolytic systems)* on page 1833