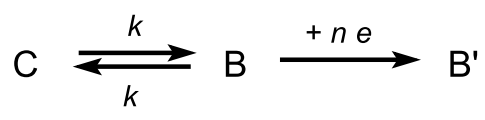


## diffusion current (or diffusion-controlled current)

A faradaic current whose magnitude is controlled by the rate at which a reactant in an electrochemical process diffuses toward an electrode-solution interface (and, sometimes, by the rate at which a product diffuses away from that interface). For the reaction mechanism



there are two common situations in which a diffusion current can be observed. In one, the rate of formation of B from electroinactive C is small and the current is governed by the rate of diffusion of B toward the electrode surface. In the other, C predominates at equilibrium in the bulk of the solution, but its transformation into B is fast; C diffuses to the vicinity of the electrode surface and is there rapidly converted into B, which is reduced.

**Source:**

PAC, 1985, 57, 1491 (*Recommended terms, symbols, and definitions for electroanalytical chemistry (Recommendations 1985)*) on page 1495