

catalytic current

The *faradaic current* that is obtained with a solution containing two substances B and A may exceed the sum of the faradaic currents that would be obtained with B and A separately, but at the same concentrations and under the same experimental conditions. In either of the two following situations the increase is termed a catalytic current.

B is reduced or oxidized at the electrode-solution interface to give a product B' that then reduces or oxidizes A chemically. The reaction of B' with A may yield either B or an intermediate in the overall half-reaction by which B' was obtained from B. In this situation the increase of current that results from the addition of A to a solution of B may be termed a regeneration current.

The presence at the electrode-solution interface of one substance, which may be either A or the product A' of its reduction or oxidation, decreases the over-potential for the reduction or oxidation of B.

In either case the magnitude of the catalytic current depends on the *applied potential*.

If the current observed with a mixture of A and B is smaller than the sum of the separate currents, the term non-additive current should be used.

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