

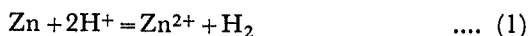
4.2

THE SIGN OF HALF-REACTION POTENTIALS

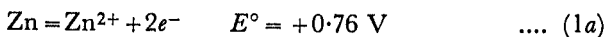
WENDELL M. LATIMER

University of California, Berkeley, U.S.A.

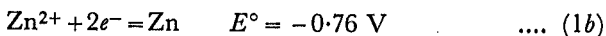
THE proposals of the interested commissions at the Stockholm meeting of the International Union of Pure and Applied Chemistry did not resolve the differences in the conventions relating to the sign of the half-reaction potentials. If the potential of the reaction



is taken as positive, then one must write



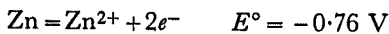
or



but the adoption of the value given in equation (1b) as the electrode potential does not remove the fundamental objection that it is reaction (1a) which is producing the electrons in a cell utilizing reaction (1) and that electrons flow from the zinc electrode in the external circuit.

The author is willing to support a proposal to change the accepted conventions which gives opposite signs to the free energy, ΔG and the potential E , and give them the same sign.

Thus the ΔG° for reaction (1) is negative, and if E° is also taken negative, i.e. -0.76 V , then one must write



This means the adoption of the so-called European sign convention at the expense of a somewhat awkward negative sign for the potential of batteries, but the change appears to be the simplest solution to the present impasse.