



CATHODIC REACTIONS ON THE SURFACE OF NICKEL IN METHANOL SOLUTIONS OF ELECTROLYTES

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Abstract

This paper concerns the cathodic reactions occurring on the surface of nickel in methanolic solutions of electrolytes. Methanol reduction process, in this potential range, is inhibited by formation of surface compound, product of reaction parallel to methanol reduction – oxidation of nickel with participation of CH_3OH molecules. Competitive processes, formation of surface product (reaction of metal surface with methanol) and its dissolution (reaction of surface product with complexing agent), decide about free surface area on which can occur reduction of methanol. Presence of complexing agents – CH_3O^- and Cl^- anions, causes “cleaning” the surface of surface anodic product and thereby facilitates cathodic reduction of methanol (reactions 3, 5, 6, 7). Removing of surface product is the process controlled by diffusion of anions to the electrode surface.

Keywords: methanol, nickel, cathodic reduction
