

## Electrooxidation of glycine and $\alpha$ -alanine on platinum

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### Abstract

Methods of cyclic linear voltammetry, coulometry and potential-modulated in situ reflective IR spectroscopy have been used to investigate the processes of the anodic oxidation of glycine and  $\alpha$ -alanine anions on platinum. Potential ranges of electrochemical transformation of amino acids have been determined. It has been shown that the oxidation of both Gly<sup>-</sup> and  $\alpha$ -Ala<sup>-</sup> are "gentle" and proceed with the detachment of four electrons, thus the current efficiency is close to 100%. The basic products of the anodic oxidation of amino acid anions are HCOO<sup>-</sup>, CO<sub>2</sub>, NH<sub>3</sub>; there are also CO, CN<sup>-</sup>, and such particles as -CH<sub>x</sub> (x = 1; 2 or 3). It has been established that the anodic oxidation of glycine and  $\alpha$ -alanine proceeds from the adsorbed state, and the first single-electron stage of ionization is limiting.