Electrocatalytic Behavior of Mediators during Anodic Oxidation of Tartaric Acid at Platinum Electrodes

Abstract
The effect of the nature and concentration of different halide salts (NaBr, NaCl and NaF) was followed by electrochemical measurements in an alkaline media. Based on the interesting results that were obtained, the electrochemical oxidation (EO) of tartaric acid (TA) with Pt electrodes was performed in the absence and presence of those substances, in order to verify their influence in indirect electrocatalytic mechanisms. A slow EO was observed in the absence of mediators. Conversely, with halide salts, the rate of the electrochemical incineration was significantly enhanced in the following order Cl- < Br- < F-. The rate of the mediated process was practically independent of applied current density (30 and 60 mA cm(-2)). Energy efficiency and energy consumption parameters were estimated, as well as the by-products were detected by GC/MS technique. (c) 2017 The Electrochemical Society. All rights reserved. (AU)