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化学

HNO_3介质中$H_2C_2O_4$电解动力学及电解氧化机理

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摘要 以Pt-Ti（镀铂钛）为阳极，Ti为阴极，对HNO_3介质中的$H_2C_2O_4$进行恒电流电解，考察HNO_3介质中$H_2C_2O_4$电解动力学特性及其影响因素，并初步探讨HNO_3介质中$H_2C_2O_4$的电解氧化机理。研究结果表明：电流密度控制在25～37 mA/cm2、HNO_3浓度为2～3 mol/L、温度为30~40 ℃时，电解效果最佳；微量金属离子（Fe^{3+}、MnO-4、Ag+）的存在对H2C2O4的电解起催化作用，能较大提高电解速率；电解氧化法破坏H2C2O4的效率高于KMnO4蒸煮法，在工业中有潜在的应用前景。

关键词 动力学；H2C2O4；电解

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Kinetics and Mechanism of Electrolysis of Oxalic Acid in Nitric Acid Solution

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Abstract The electrolytic destruction of oxalic acid （OA） in nitric acid solution was studied. Using platinized titanium （Pt-Ti） electrode as anode and titanium as cathode， the electrolysis of OA and the effect factors were experimentally investigated under the series of constant current density. Based on the results， the optimal operation parameters are established as follows： the current density of 25-37 mA/cm^2， nitric acid concentration of 2-3 mol/L and the temperature of 30-40 ℃， meanwhile a small quantity of metallic ions， such as Fe^{3+}， MnO_4^-， Ag^+， can catalyze the electrolysis of OA to increase the destruction efficiency. The results of comparative experiments show that the destruction of OA with the electrochemical oxidation method is more effective than that with KMnO4 boiling oxidation method.

Key words kinetics _ oxalic acid _ electrolysis

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