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Oxidation of Poly Hydroxy Compounds by Tetravalent Cerium in Aqueous Acetic Acid - Perchloric Acid Media: A Kinetic Study

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Abstract : Kinetics of oxidation of glycerol and 1,2-propanediol by tetravalent cerium was studied in aqueous acetic acid-perchloric acid media. The reactions are first order in [oxidant], [substrate] and $[H^+]$. The effect of Mn^{2+} and solvent variations are also studied. An increase in rate was observed with decrease in dielectric constant, pointing to the fact that these are the reactions between positive ion and dipole. Arrhenius parameters are calculated and a plausible mechanism is postulated based on experimental results.

Keywords : Glycerol, 1,2-propanediol, Cerium (IV), Acetic Acid medium, Oxidation, Kinetics.

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