

## Oxidation of Propane-1,3-diol (Non-Vicinal) by Potassium Permanganate in Aqueous Medium

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The oxidation of propane-1,3-diol by potassium permanganate in aqueous solution have been studied at  $\lambda_{\max}$  525 nm. The rate of the reaction has been found to increase with increase in  $[\text{KMnO}_4]$  and  $[\text{Propane-1,3-diol}]$ . The reaction shows first order dependence both on  $[\text{KMnO}_4]$  and  $[\text{Propane-1,3-diol}]$  and independent on the ionic strength of the solution. The  $\Delta H^\circ$  ( $\text{kJ mol}^{-1}$ ),  $\Delta S^\circ$  ( $\text{kJ K}^{-1} \text{mol}^{-1}$ ) and  $\Delta G^\circ$  ( $\text{kJ mol}^{-1}$ ) were 24.98, -0.22 and 90.50 respectively. Negative entropy of activation revealed an ordered transition state for the reaction. Spectroscopic studies showed the product of the reaction to be 3-hydroxyl-propanal. A plausible mechanism in consonance with spectroscopic studies and kinetic result was proposed.

### Notes: