



**Kinetics of oxidation of hydroquinone by vanadium (V) under the conditions where decavanadates and  $\text{VO}_2^+$  coexist-kinetic evidence for the reactivity of  $\text{VO}_2^+$  and decavanadates**

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**ABSTRACT**

*Kinetics of oxidation of hydroquinone by vanadium (V) has been investigated in the pH range 3.1-4.3 where  $\text{VO}_2^+$  and decavanadates,  $\text{H}_2\text{V}_{10}\text{O}_{28}^{4-}$  and  $\text{HV}_{10}\text{O}_{28}^{5-}$  exist in equilibria with each other. The kinetic patterns under these conditions are entirely different from that observed in strong acid media. The kinetic results show the simultaneous involvement of  $\text{VO}_2^+$ ,  $\text{H}_2\text{V}_{10}\text{O}_{28}^{4-}$  and  $\text{HV}_{10}\text{O}_{28}^{5-}$  in the electron-transfer. The reactivities are in the order of  $\text{VO}_2^+ \gg \text{H}_2\text{V}_{10}\text{O}_{28}^{4-} > \text{HV}_{10}\text{O}_{28}^{5-}$ .*

**Keywords:** kinetics, decavanadate, oxidation, hydroquinone.

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