

碱性介质中二过碲酸合铜(III)氧化乙二醇的反应动力学及机理

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 本文采用分光光度法研究了碱性介质中二过碲酸合铜(III)(DTC)氧化乙二醇(Glgcol)在291.2-303.2K的反应动力学机理。结果表明, 反应对氧化剂(DTC)是一级, 对乙二醇也是一级, 准一级([Glycol] \rightarrow [DTC])速率常数 K_{obs} 随着[OH⁻]增加而增加, 随着[TeO₄²⁻]增加而降低, 并且有负盐效应, 提出了一种含有前期平衡的反应机理。据此导出了一个能够解释全部实验事实的速率方程, 求出平衡常数、速控步骤的速率常数及298.2K时的活化参数。

关键词 [分光光度法](#) [氧化](#) [反应机理](#) [反应动力学](#) [乙二醇](#) [反应速度常数](#) [二过碲酸合铜](#)

分类号 [0643](#)

Kinetics and mechanism of oxidation of glycol by ditellurato-cuprate (III) in alkaline medium

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Abstract The kinetics of oxidation of glycol by ditellurato-cuprate (III) has been studied by spectrophotometry in alkaline medium. The reaction rate showed first order dependance in oxidant and so was in glycol. It was found that the pseudo first-order ([Glycol] \rightarrow [Cu(III)]₀) rate constant K_{obs} increased with the increases in [OH]⁻ and decreases with the increases in [TeO₄²⁻]. There is a negative salt effect. A mechanism involving a preequilibrium of an adduct formation between the complex and glycol was proposed. The equation derived from the mechanism explained all the experimental results and the preequilibrium constants. Rate constants of the rate-determining step along with the activation parameters were evaluated.

Key words [SPECTROPHOTOMETRY](#) [OXIDATION](#) [REACTION MECHANISM](#) [REACTION KINETICS](#) [ETHANEDIOL](#) [REACTION RATE CONSTANT](#)

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