

## 以Sephadex为基质的光纤铜传感器的研究

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**摘要** 本文发展了一种新的光纤铜传感器, 用DEAE Sephadex为基质, 通过电价键固定亚硝基红盐作为指示剂, 该传感层在520nm波长下,

反射光强度的变化与铜离子的浓度呈函数关系。用流动法和平衡法对传感器特性进行了研究, 响应时间为5秒, 且可逆性好, 已成功应用于自来水和废水中痕量铜离子的直接测定。

**关键词** [铜离子](#) [传感器](#) [光纤器件](#) [平衡法](#) [铜传感器](#) [流动法](#)

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## A fiber-optic copper sensor with DEAE Sephadex as a substrate

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**Abstract** A fiber-optic sensor for copper based on reflection has been developed. It is prepared by immobilizing Nitroso-R salt on the DEAE Sephadex, the change of the reflected intensity at 520nm is proportional to the concentration of copper. The characteristics of the sensor have been studied by using the equilibrium and kinetics method. Because DEAE Sephadex is a colourless and transparent gel containing diethylamine glucan with low mass transfer resistance in water, the sensor reaches 90% of steady-static in 5 seconds; the sensor has no optical influence owing to no absorption at all in the visible region; the complex decomposes in 0.1 mol.dm<sup>-3</sup> HCl, so the sensor has good sensitivity as well as good reversibility and has been successfully applied to the determination of copper ion in natural water and waste water.

**Key words** [COPPER ION](#) [SENSORS](#) [OPTICAL FIBER DEVICES](#) [EQUILIBRIUM METHOD](#)

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