

论文

流动注射-光度法测定亚硝酸盐

西南交通大学环境科学与工程学院,四川成都610031; 绍兴文理学院生命科学院,浙江绍兴312000; 山东科技大学化学与环境工程学院,山东青岛266510; 四川大学轻纺与食品学院,四川成都610065

摘要:

为快速测定微量亚硝酸盐,建立了一种新的测定亚硝酸盐的方法——流动注射-催化光度法.该方法结合流动注射技术,以亚硝酸盐对氯酸钠与亚甲基蓝发生的褪色反应有催化作用的研究结果为基础.最优试验条件下,在5~150 $\mu\text{g/L}$ 和150~1000 $\mu\text{g/L}$ 范围内吸光强度与NO₂的质量浓度呈良好的线性关系,该方法的检出限为1 $\mu\text{g/L}$.对质量浓度为10和100 $\mu\text{g/L}$ 的NO₂分别进行了11次连续测定,相对标准偏差分别为3.1%和4.6%.用此方法检测河水和地下水水样中的亚硝酸盐,标准偏差为1.1%~3.4%,加标回收率为97.6%~100.3%.

关键词: 流动注射 光度分析法 亚硝酸盐 环境水体

Determination of Nitrite with FI-Spectrophotometric Analysis

School of Environmental Science and Engineering, Southwest Jiaotong University, Chengdu 610031, China; College of Life Science, Shaoxing University, Shaoxing 312000, China; School of Chemistry and Environment Engineering, Shandong University of Science & Technology, Qingdao 266510, China; College of Light Industry, Textile and Food Engineering, Sichuan University, Chengdu 610065, China

Abstract:

A new flow-injection catalytic kinetic spectrophotometric method was proposed to rapidly determine trace amounts of nitrite. The proposed method is based on the accelerating effect of nitrite on the reaction between potassium chlorate and methylene blue in strongly acidic media and combines the flow injection. Under the selected conditions, the calibration graph is linear in the nitrite mass concentration ranges of 5 to 150 $\mu\text{g/L}$ and 150 to 1000 $\mu\text{g/L}$, and the detection limit is 1 $\mu\text{g/L}$. The relative standard deviation is respectively 3.1% for 10 $\mu\text{g/L}$ nitrite (n , number of samples, is 11) and 4.6% for 100 $\mu\text{g/L}$ nitrite ($n=11$). The proposed method has been applied to the determination of nitrite in natural water samples, the standard deviation is 1.1% to 3.4% and the recovery is 97.6% to 100.3%.

Keywords: flow injection spectrophotometry nitrite natural water

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通讯作者:

作者简介:

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