

论文

磺胺药物电极:选择性与电位分析

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摘要:

磺胺药物传感电极可用于磺胺药物的电位滴定,用硫酸为滴定剂,等当点处电位突跃明显,最大误差0.7%。电极也可用于直接电位法测定。常见无机阴离子无显著干扰。对于所试各磺胺电极,不同磺胺药物的选择性系数与分子连接性指数、pK_a及磺胺N上电子电荷密度三者有关,符合通式logK_{ij}=ax-bpK_a+cp-d,相关性良好。但如只考虑上述因素之一或其二元组合,相关性较差。

关键词: 磺胺药物传感电极 电极选择性 电位滴定

SULPHA-DRUG SENSITIVE ELECTRODES: SELECTIVITY AND POTENTIOMETRIC TITRATION

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Abstract:

Sulpha-drug sensitive electrodes have been suggested for the potentiometric titration of sulpha-drugs using a standard sulphuric acid solution as titrant with distinct potential jump at the equivalence point and a maximum error of 0.7%. Direct potentiometry is also possible. No significant interferences are caused by commonly met inorganic anions. The selectivity of the electrodes toward different sulpha-drugs has been investigated in detail. It has been found that for all electrodes tested including cetyltriocetylammmonium sulphathiazole, sulphadoxine and sulphadimethoxine electrodes, the logK_{ij} values for the sulpha-drugs can be expressed as a function of molecular connectivity index, pK_a and the electronic charge at the ionizing nitrogen atom of the amide group according to the following equation: logK_{ij}=ax-b pK_a+cp-d. The correlation has been shown to be significant. However, the correlations between log K_{ij} and molecular connectivity index, pK., electronic charge either separately or binarily are rather poor.

Keywords: Electrode selectivity Potentiometric titration Sulpha-drug sensitive electrode

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