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稀土与多卤代变色酸双偶氮胂类试剂的配合反应研究

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摘要 本文研究了稀土与卤代变色酸双偶氮胂类试剂的配合反应,测定了配合物的稳定常数,试剂的离解常数和配合物组成,讨论了试剂结构与配合物吸收光谱的关系和β型配合物的生成条件,从而探讨了该类试剂在高酸度下与稀土的配合反应机理.

关键词 反应机理 卤化物 稀土族 显色剂 稳定常数 稀土金属络合物 偶氮胂 偶氮化合物 萘二磺酸P 萘二酚 P 离解平衡 络合反应

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Study on the complex formation between rare earth and polyhalogenated bisazo derivative of chromotropic acid containing AsO~3H~2

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Abstract Complex formation between rare earth ions and polyhalogenated bisazo chromotropic acid was studied. The dissociation constants of tribromoarsenazo determine by spectrophotometric and potentiometric methods are pK1 = 0.8, pK2 = 1.7, pK3 = 2.5, pK4 = 6.5, pK5 = 9.6, and pK6 = 10.3, resp. These dissociation constants are larger than those of Arsenazo III and the stability constants of the complexes formed are higher than those for other reagents of the same type (log KS = 52 ?0.4). The molar ratio Ce/DBC-Arsenazo in the complex is estimated to be 1:3 by the Jobs continuous variation and the equilibrium shift methods. When halogen atom are introduced into the ligand, red- or blue-shifts of the absorption peaks occur. The shape of the absorption spectrum changes from asym. to sym. with decreasing electronegativity of the halogen atom.

Key words REACTION MECHANISM HALIDE RARE EARTH SERIES COLOUR REAGENTS STABILITY CONSTANT RARE EARTH METAL COMPLEX ARSENAZO AZO COMPOUNDS NAPHTHALENEDISULFONIC ACID P NAPHTHALENEDIOL P DISSOCIATION EQUILIBRIUM COMPLEX REACTION

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