

II B族金属离子-5-取代邻菲罗啉-二酮肟配体三元体系的 稳定性研究

张耀山,林华宽,汪中明,朱守荣,孙宏伟,陈荣梯

南开大学化学系,天津(300071)

收稿日期 修回日期 网络版发布日期 接受日期

摘要 在 $(35\pm 0.1)^\circ\text{C}$, $I=0.1\text{mol}\cdot\text{dm}^{-3}\text{KNO}_3$ 条件下,用pH法测定了二酮肟配体PnAO,5-取代邻菲罗啉(5-Rphen,R=CH₃,H,Cl,NO₂)的质子化常数,Zn(II),Cd(II),Hg(II)分别与PnAO和5-Rphen二元体系的稳定常数,以及Zn(II),Cd(II),Hg(II)-PnAO-5-Rphen三元体系的稳定常数。实验结果表明,在上述二元、三元体系中均存在良好的直线自由能关系,并从三元配合物构型上讨论了存在线性关系的内在原因。同时,讨论了金属离子、取代基对配合物稳定性的影响。

关键词 [I I B族元素](#) [金属离子](#) [二氮杂菲P](#) [二元酮](#) [肟](#) [三元络合物](#) [稳定性](#) [稳定常数](#)

分类号 [0611.662](#)

Study on the stability of group II B metal ion-5-substituted o-phenanthroline-diketooxime ternary complexes

Zhang Yaoshan, Lin Huakuan, Wang Zhongming, Zhu Shourong, Sun Hongwei, Chen Rongti

Nankai Univ, Dept Chem, Tianjin(300071)

Abstract The protonation constants of 3, 3', 9, 9'-tetramethyl-4, 8'-diazundecane-2, 10-dioxime (PnAO), the stability constants of Zn(II), Cd(II), Hg(II)-PnAO, Zn(II), Cd(II), Hg(II)-5-substituted o-phenanthroline binary complexes and Zn(II), Cd(II), Hg(II)-PnAO-5-substituted o-phenanthroline ternary complexes have been determined by pH titration method at $(35\pm 0.1)^\circ\text{C}$, $I=0.1\text{mol}\cdot\text{dm}^{-3}\text{KNO}_3$. The results show that here exist Linear Free Energy Relationships (LFER) between the protonation constants of 5-substituted o-phenanthroline and the corresponding stability constants of Zn(II), Cd(II), Hg(II) binary complexes as well as the relevant constants for the Zn(II), Cd(II), Hg(II)-PnAO-5-substituted o-phenanthroline ternary system. The stability order for the title systems is generally shown by the following: $\text{Zn(II)} > \text{Cd(II)} < \text{Hg(II)}$. The internal cause has been explored in terms of the charge/radius effect of the metal ions.

Key words [GROUP IIB ELEMENT](#) [METAL ION](#) [PHENANTHROLINE P](#) [DIKETONE](#) [OXIME](#) [TERNARY COMPLEX](#) [STABILITY](#) [STABILITY CONSTANT](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(472KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“ I I B族元素” 的相关文章](#)

▶ 本文作者相关文章

- [张耀山](#)
- [林华宽](#)
- [汪中明](#)
- [朱守荣](#)
- [孙宏伟](#)
- [陈荣梯](#)