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MoS^2^-~4在铜表面的配位化学反应

叶向荣,忻新泉

南京大学配位化学研究所;南京大学配位化学国家重点实验室

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摘要 MoS^2^-~4与铜表面作用可以形成几种颜色的簇合物膜。FT-IR, XPS和AES结果表明, 膜中存在Cu-S-Mo键; 簇合物膜含Cu, Mo, S, O四种元素, 分别呈+1, +6,-2, -2价, 并含少量+4和+6价硫; 膜为多分子层的双层结构 . 反应时间越长, 膜越厚;加热后膜层仍含Cu, Mo, S, O 元素, Mo向内层渗透, S则在表面富集, Cu呈+1和+2价, S呈-2, +4, +6价, Mo和O价态不变;膜层是多组分的复杂体系; 其颜色是各化合物吸附、叠加的结果。

关键词 国家教委高等学校博士学科点专项科研基金 MOS 簇合物膜 配位化学反应 铜表面

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Coordination chemical reaction of MoS^2^-~4 on the surface of copper

YE XIANGRONG,XIN XINQUAN

Abstract Cluster compound films with various colours had been formed by the reaction of MoS^2^-~4 on the surface of copper. The results of FT-IR, XPS and AES study show the formation of Cu-S-Mo bonds on the surface. The cluster films are composed of four elements, Cu, Mo, S and O, showing +1, +6, -2 and -2 valence state, respectively. There also exists little of sulfur of +4 and +6 valence. The films are all multimolecular doublelayers. Most of the MoS~4 units are kept in the inner layers while some MoO~2S~2 units exist in the outer layers. The thickness of the film depends on the reaction time. The heated films are also composed of Cu, Mo, S, O, Mo infiltrated to the inner layer while S concentrated on the surface. Cu showes +1 and +2 valence state, S is -2, +4, +6 valency while the valence state of Mo and O unchanged. So, the films are complicated multicomponent systems, their colours are caused by the overlap adsorption of various sorts of compounds.

Key words

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