

论文摘要

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金、银和铜氰化溶解速率及硫离子对其影响的比较

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摘要:用旋转圆盘法在相同的实验条件下, 对金、银、铜的氰化溶解速率进行比较研究。当氰化钠浓度为5.00 g/L、圆盘转速为600 r/min、温度为30 °C时, 获得表观速率常数的顺序为: $Au < Ag < Cu$ 。在氰化钠溶液中加入微量硫化钠后, 硫离子抑制氰化反应的影响程度则为: $Au > Ag > Cu$ 。分析讨论了电化学反应机理, 提出了相应的观点并对实验结果进行了解释。

关键字: 金; 银; 铜; 氰化溶解; 硫离子

Comparison of cyanidation rates of gold, silver and copper and influences of sulfion on them

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Abstract: The cyanidation rates of gold, silver and copper were compared with each other under the same reaction conditions by kinetic rotating disk method, and the influences of sulfion on them were discussed. The results show that when the three metals react at $\rho(\text{NaCN})$ of 5.00 g/L, 600 r/min and 30 °C, the obtained apparent rate constants for cyanide dissolution of three metals accord with the order of $Au < Ag < Cu$. However, when sodium sulfide is added into the cyanide solutions in advance, the decrease ratios of cyanide dissolution rates of the three metals accord with the order of $Au > Ag > Cu$. The reaction thermodynamics and mechanism based on the electrochemical theory were discussed, and some new explanations for experimental phenomena were proposed.

Key words: gold; silver; copper; cyanidation; sulfion

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