



## 论文摘要

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### 钼的硫化反应热力学分析

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**摘要:** 钼钼分离是钼提取冶金中的1道重要工序. 目前工业上应用的分离方法大都基于钼和钼对硫亲和力的差异, 在一定条件下使 $\text{MoO}_4^{2-}$ 硫化为 $\text{MoS}_2$ , 而进一步除去, 因而研究有关硫化反应的理论对于寻找最佳工艺条件有重要指导意义. 作者通过热力学计算, 对钼的硫化行为进行了考察. 研究表明: 为使钼完全硫化, 溶液的pH值要低于8; 实践中所采用的 $n(\text{S})=4n(\text{Mo})$ 且溶液中游离 $\text{S}^{2-}$  125 mol/L, 远超过热力学平衡需要, 实际上是考虑到动力学原因; 在上述条件下钼可完全硫化.

**关键字:** 钼; 硫代钼酸根; 硫化反应; 热力学

### Thermodynamic analysis on sulfidation of molybdate

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**Abstract:** Separating molybdenum from tungstate is an important process in tungstate extractive metallurgy. Most of the commonly used method are based on their difference in affinity to sulfur. Under certain condition molybdenum ions can be sulfurized into thiomolybdate (such as  $\text{MoS}_2$ ) and then be removed. So the knowledge about the theory of sulfuration is vital for optimizing the operation condition. In this paper the sulfidation behaviour of molybdate ion was studied through thermodynamic calculation. It is found that, for complete sulfidation, the solution pH should be kept less than 8, 4 g/L free sulfur exceeding the stoichiometric amount used in practice is far more than that needed for thermodynamic equilibrium, owing to the slow reaction kinetics. Whether the Mo concentration is high or low, 4 g/L free sulfur exceeding stoichiometric amount is enough.

**Key words:** molybdenum; thiomolybdate; sulfidation reaction; thermodynamic

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