

### 论文摘要

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### 钼酸盐溶液离子交换钼钒分离机理

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**摘要:** 对钼酸盐溶液离子交换钼钒分离机理进行研究。研究表明, 在钼酸盐溶液中 $V_2O_5$ 含量约为0.5 g/L, 钒与钼在pH值为6.5-8.5的范围内分别以  $VO_4^{3-}$  和  $MoO_4^{2-}$  的形态存在。由于强碱性阴离子交换树脂对  $VO_4^{3-}$  的亲合力大于对  $MoO_4^{2-}$  的亲合力, 在交换过程中  $VO_4^{3-}$  优先被吸附, 从而实现钼酸盐溶液中钼与钒的分离。在钼酸铵溶液中强碱性阴离子交换树脂的钒、钼分离系数为295.62, 取工作穿透点为0.02 g/L  $V_2O_5$ , 可确保流出液用硝酸酸沉得到的钼酸铵产品中钒的含量小于0.001 5%。

**关键字:** 钼; 钒; 离子交换; 分离机理

### Mechanism of vanadium removal from molybdate solution by ion-exchange

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**Abstract:** The mechanism of vanadium removal from ammonium molybdate solution by ion-exchange was studied. It is found that V(V) and Mo existing in ammonium molybdate solution are in the forms of  $VO_4^{3-}$  and  $MoO_4^{2-}$ , respectively, when  $V_2O_5$  concentration is about 0.5 g/L and the pH value is in the range of 6.5-8.5. The adsorption of  $VO_4^{3-}$  is prior to that of  $MoO_4^{2-}$  by a strong base resin because the charges contained in  $VO_4^{3-}$  are higher than those in  $MoO_4^{2-}$ , which made vanadium removed from the solution by ion-exchange. Experimental results show that the coefficient of vanadium separation from molybdenum is 295.62 for the resin in the ammonium molybdate solution, and the content of vanadium is less than 0.001 5% in the ammonium molybdate crystal that was obtained by adding nitric acid to the effluent collected till the breakthrough point up to 0.02 g/L  $V_2O_5$ .

**Key words:** molybdenum; vanadium; ion-exchange; separation mechanism

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