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含钒石煤的氧化焙烧机理

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摘 要：采用X射线衍射(XRD)、扫描电镜(SEM)和能谱分析(EDX)等技术对石煤氧化焙烧过程进行研究，考察焙烧对钒浸出的影响。结果表明：石煤在氧化焙烧过程中，有机质和黄铁矿首先被氧化，含钒伊利石晶体结构在750~850 ℃被破坏，V(Ⅲ)和V(Ⅳ)氧化反应达到平衡时，钒浸出率达到最大值；当焙烧温度高达1 050 ℃时，物料烧结使钒被包裹，这是在1 050 ℃焙烧后钒浸出率急剧降低的主要原因。

关键字：石煤；钒；氧化；焙烧；浸出

Mechanism of oxidizing roasting process of vanadium containing stone coal

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Abstract: The oxidizing roasting process of vanadium containing stone coal was investigated by X-ray diffraction (XRD), scanning electron microscopy (SEM) and energy spectrum analysis (EDX), and the effects of roasting conditions on leaching rate of vanadium were studied. The results show that in the roasting process, the organic matter and pyrite are oxidized firstly. When the roasting temperature is in the range of 750−850 ℃, the crystal structure of illite containing vanadium is gradually destroyed, the oxidation reaction of V(Ⅲ) and V(Ⅳ) reaches a balance, and the leaching rate of vanadium reaches the best. When the roasting temperature reaches 1 050 ℃, the vanadium is enwrapped by sintered matter, which is the main reason making the leaching rate of vanadium decrease quickly.

Key words: stone coal; vanadium; oxidation; roasting; leaching

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