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内熔体浇口位置对7075/6009合金铸锭成分和 内层组织的影响

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摘 要: 为了控制梯度复合铸锭横截面上的内层组织分布, 通过改变内熔体浇口在结晶器中心线上的不同位置, 采用双流浇注半连续铸造技术制备内层合金宽度不同的7075/6009梯度复合铸锭, 分析不同内层合金宽度的铸锭横截面上的宏观组织、硬度分布及其微观组织的二次枝晶间距, 探讨内熔体浇口位置对双流浇注半连续铸造技术的内熔体形成液穴的影响。结果表明: 随着内熔体浇口探入结晶器深度的加大, 铸锭横截面的内层合金组织的宽度逐渐加大, 洛氏硬度始降点逐渐外移, 铸锭横截面的Zn含量始降点也逐渐外移, 半径为10 mm处的二次枝晶间距逐渐缩小。

关键字: 连续铸造; 7075/6009铝合金; 导管位置; 凝固液穴

Effects of position of submerged entry nozzle in mould on composition and structures of 7075/6009 Al alloy ingots

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Abstract: In order to control the distribution of internal layer on the cross section of the gradient composite ingots, several 7075/6009 composite ingots were prepared by double-stream-pouring continuous casting by adjusting the positions of submerged entry nozzle in the mould. Macrostructures, hardness distributions and secondary dendrite spacing of the prepared ingots with different internal layer thicknesses were investigated. The effect of the position of submerged entry nozzle in the mould on liquid pool of inside melt was analyzed. The results show that, with the increase of the depth of submerged entry nozzle in the mould, the thickness of internal layer on the cross section of the ingots increases gradually, and the initial dropping points of Rockwell hardness and Zn content move to the ingot surface. Furthermore, the secondary dendrite spacing of the alloy at the radius of 10 mm decreases.

Key words: continuous casting; 7075/6009 Al alloy; entry nozzle position; solidification liquid pool

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