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泡沫铝二次发泡工艺用先驱体中TiH2发泡剂的分散性

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摘 要：研究二次发泡泡沫铝工艺用熔体路径发泡先驱体中TiH_2的分散性，包括熔体粘度测量、工艺参数对发泡剂分散性影响等。结果表明，610 ℃是ZLD104合金熔体粘度变化的转折点，低于610 ℃熔体粘度随温度的变化较大，高于610 ℃熔体粘度随温度的变化较小；随分散温度、搅拌速度、分散时间的提高，发泡剂分散均匀性提高，但在3 000 r/min，分散30 s的条件下，发泡剂的团聚现象仍然存在；在粘度–温度非敏感区分散发泡剂，并采用挤压使发泡先驱体致密化，以及采用3 000 r/min以上的搅拌速度分散发泡剂，可提高熔体路径发泡先驱体发泡剂均匀性。

关键字： TiH2发泡剂；熔体路径先驱体；分散性；泡沫铝

Dispersion of TiH2 foaming agent in precursor for two-step foaming process of aluminum foam

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Abstract: The dispersion of TiH2 in the melt route precursor for two-step foaming process of aluminum foam was studied, including the measurement of aluminum melt viscosity, the effects of processing parameters on the dispersion of TiH2, etc. The results show that 610 ℃ is the key point of the temperature—viscosity relationship of aluminum foam. While the melt temperature is below 610 ℃, the viscosity elevates greatly with decreasing temperature. While melt temperature is above 610 ℃, the viscosity elevates slowly with decreasing temperature. The uniform of foaming agent is improved with increase of melt temperature, stirring speed and dispersing time. However, the aggregation of TiH2 still exists stirred at rotation speed 3 000 r/min for 30 s. Three approaches are found to be effective to improve the uniform of TiH2 in the melt route precursor: disperse TiH2 in the viscosity-temperature non-sensitive area of aluminum alloy, density the cast precursor by pressing, and use a rotation speed higher than 3 000 r/min.

Key words: TiH2 foaming agent; melt route precursor; dispersion; aluminum foam

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