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论文

PP/POE共混物的*P-V-T*属性及压力对结晶温度的影响

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摘要:

采用PVT膨胀仪研究了PP/POE共混物的*P-V-T*属性, 利用Tait方程预测其比容和热膨胀系数(α), 研究了压力对结晶温度(T_c)的影响. 结果表明, Tait状态方程可用来预测部分相容的、半结晶PP/POE共混物的PVT行为. PP结晶前后的比容变化比POE的大得多, 随着POE含量的增加, PP/POE共混物结晶前后比容的变化均逐渐减小. PP在熔融状态下的α比固体状态的大, 而POE正好相反. PP/POE共混物的α随温度和压力的变化与其组成密切相关. 随着压力的增高, PP, POE及其PP/POE共混物的结晶温度均呈线性增高的趋势.

关键词: PP/POE共混物 PVT行为 Tait状态方程 高压结晶

P-V-T Properties of PP/POE Blends and Influence of Pressure on Crystallization Temperature

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Abstract:

P-V-T properties of PP/POE blends were measured by PVT dilatometer under different pressure. The specific volume(V_{sp}), expansivity coefficient(α) of PP, POE and PP/POE blends were calculated by Tait equation, and the influence of pressure on their crystallization temperature(T_c) were discussed. The results show that Tait equation can be used to predict the *P-V-T* properties of blends with partial compatibility and semi-crystallinity. The variation of V_{sp} value of PP during crystallization is bigger than that of POE. With increasing the POE content, the variation of V_{sp} value of PP/POE blend decreased during its crystallization. In addition, α of PP in molten state is bigger than that in solid state, whilst α of POE at solid state is bigger than that at molten state. The variation of α of PP/POE blend under different temperature and pressure depends on the composition of the blend. With increasing the pressure, the crystallization temperature values of PP, POE and PP/POE blends increase linearly.

Keywords: PP/POE blend PVT behavior Tait equation Crystallization Pressure

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