

## Influence of Graphene on the Non-Isothermal Crystallization Kinetics of Poly (Vinyl Alcohol)/Starch Composite

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**Abstract:** Non-isothermal crystallization behavior of poly (vinyl alcohol)/starch and poly (vinyl alcohol)/starch/graphene nanocomposites was studied using differential scanning calorimetry (DSC). Ozawa and Mo models were used to analyze the non isothermal kinetics. The differential Friedman method was used to evaluate the effective activation energy (EA) of the nanocomposites. The data fits the Mo Model well in the investigated temperature range. Graphene nucleates the crystallization of the composites by increasing the crystallization onset temperature along with the lowering of EA. However, significant changes in the crystallization half-time were not observed, suggesting that the effect of graphene is more prominent at the nucleation stage.

**Keywords:**

Non-isothermal crystallization. Graphene. Poly (vinyl alcohol)/starch. Nanocomposites. DSC.

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