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## **Isothermal and non-isothermal crystallization of isotactic polypropylene in the presence of an $\alpha$ nucleating agent and zeolite 13X**

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### **Highlights**

- Zeolite 13X increases the nucleating effect of nucleating agent NA 11 in PP alone.
- Zeolite makes nucleating agent show better nucleating effect in PP at lower amount.
- The synergistic nucleating effect of zeolite and nucleating agent in PP is revealed.

### **Abstract**

The isothermal and non-isothermal crystallization kinetics of isotactic polypropylene (iPP) and iPP nucleated with the nucleating agent sodium 2,2'-methylene-bis(4,6-di-tertbutylphenyl)-phosphate (NA11), zeolite 13X (Z13X), and both NA11 and Z13X were investigated. First, isothermal crystallization analyses show that the iPP/NA11/Z13X system provided the smallest half-crystallization time compared with the other three iPP systems even though a smaller amount of NA11 was added in the iPP/NA11/Z13X system (0.08 wt%) relative to that of the iPP/NA11 system (0.2 wt%). Moreover, the fold surface

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