

Prediction of polymer properties for industrial polyethylene process

강 일^{1,2}, 박선원^{1,*}

¹한국과학기술원; ²호남석유화학

(sunwon@kaist.ac.kr*)

Because of the global competition and various customer demands, polymer product quality is getting more important and the number of polymer grades is also increasing. Off-spec grade products are mainly produced when grade change occurs and the prices of off-spec products are lower by 5~15% than the spec products. So, one of the main interests of polymer industries is to reduce off-spec products. To achieve this objective, polymerization reactors have to be controlled carefully and the key technology for it is to predict polymer properties on real-time bases. Among many methodologies to predict polymer properties, an empirically approaching method based on plant operation data is practical. In this research, melt index and density value for industrial polyethylene process are predicted using empirical equations and plant operation data. The prediction equations consist of instantaneous equations and cumulative equations and the prediction corresponded to laboratory analysis data well.

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