

A study on inherent safety index for conceptual chemical process design

송대성[†]
전남대학교
(dssong@jnu.ac.kr[†])

In this study, an inherent safety index based on fuzzy logic is proposed to develop inherent safety indices. The fuzzy logic includes chemical properties, process data, and chemical accident databases. Inherent safety indices have been used to choose alternative processes and chemical reaction routes in chemical process design. The problem of the existing indices is that they are relative ranking methods without considering the difference in the magnitude of the hazard, complexity of the process, or expert opinion. This proposed method is applied to the methyl methacrylate (MMA) process as a case study. The results are compared with the existing methods and experts' rankings.

Keywords: Inherent safety index, Fuzzy logic, Methyl methacrylate process, Conceptual Design