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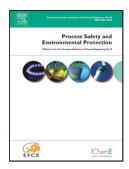
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An extension to Fuzzy Fault Tree Analysis (FFTA) application in

petrochemical process industry

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Abstract

Fault Tree Analysis (FTA) is an established technique in risk management associated with

identified hazards specific to focused fields. It is a comprehensive, structured and logical

analysis method aimed at identifying and assessing hazards of complex systems. To conduct a

quantitative FTA, it is essential to have sufficient data. By considering the fact that sufficient

data is not always available, the FTA method can be adopted into the problems under fuzzy

environment, so called as Fuzzy Fault Tree Analysis (FFTA). This research extends FFTA

methodology to petrochemical process industry in which fire, explosion and toxic gas releases

are recognized as potential hazards. Specifically, the case study focuses on Deethanizer failure in

petrochemical plant operations to demonstrate the proposed methodology. Consequently, the

study has provided theoretical and practical values to challenge with operational data shortage in

risk assessment.

Keywords: risk assessment; fault tree analysis; fuzzy sets; petrochemical industry.

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