

Safety analysis of operational failure on C₃ splitter using dynamic simulation

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Disturbances during operation such as the failures of individual components can result in a deviation from the normal operation. Pressure safety valve (PSV) prevents excessive pressure and operates independently of the control system. In this study, C₃ splitter section under operation currently is simulated for evaluating safety analysis with PSV performance using Aspen dynamics. Dynamic simulation for safety analysis of C₃ splitter after an operational failure including the possible overpressure event has been researched. The detail and thermodynamic rigor of the dynamic simulation model allows it to be validated to actual plant dynamic behavior. For an adequate simulation of practical situation, SRK equation of state and HEM(Simpson) model are selected as thermodynamic model and PSV flow model. In addition, Kister and Haas correlation was applied to estimate rigorous internal hydraulics after relieving behavior. The validated model can then provide relief load predictions of high quality and confidence. This developed simulation model allows the investigation for safety analysis covering alternative operating condition.