

Overpressure Analysis of Column Systems

General Admission Training

[siemens-energy.com/process-safety](https://www.siemens-energy.com/process-safety)



General Information

Length: 1 Day

Audience

This audience is primarily intended for personnel involved in overpressure analysis for column systems, including those involved in commissioning, start up, shutdown, and maintenance activities, as well as those involved in the application and implementation of HIPS. The intended audience includes process and instrumentation engineers.

Profile

This training course comprises the basic understanding of pressure relief scenarios associated with Column systems. This training course will introduce how to identify potential overpressure scenarios related to Columns as well as provide an overview of relief case simulations.

Objectives

Upon completion of this course, the student shall understand typical overpressure scenarios related to a Column:

- Understand and identify various overpressure scenarios
- Review column relief case simulations, considering re-boiler pinch credit when applicable
- Discuss the role of instrumentation to eliminate column overpressure scenarios

Topics

1. Typical Column Overpressure Scenarios
 - a. Column system analysis introduction
 - b. Top tower reflux failure
 - c. Loss of overhead cooling
 - d. Abnormal heat input
 - e. Loss of heat in series fractionation
 - f. Control valve failures and vapor breakthrough (blowby)
 - g. Power failure

2. Modeling Column Systems for Relief Scenarios
 - a. Column-based modeling
 - b. Flash-drum based modeling
 - c. Unbalanced heat method
 - d. Do's and don'ts related to simulations
3. Review of Relief Case Simulations and Calculations
 - a. Simple column (Debutanizer)
 - b. Complex column (FCC or Coker Fractionator)
4. Application of HIPS to Eliminate Overpressure Scenarios
 - a. Role of instrumentation
 - b. General practices
 - c. HIPS and SIS applications
 - d. Example

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