Versatile Process Safety Calculation Software

Process Safety Office® SuperChems® is an industry-recognized, versatile software tool that provides an integrated platform for pressure relief and flare systems (PRFS) evaluation and design. This powerful tool can be used for simple and complex flow dynamics, pressure relief systems and vent containment design, chemical reactivity management, quantitative risk assessment, and consequence analysis.

Main Features & Benefits

History

Developed in 1989, SuperChems® is used worldwide by leading operating companies, insurance agencies, universities, and government agencies. In 2002, the American Institute of Chemical Engineers (AIChE) / Design Institute for Emergency Relief Systems (DIERS) selected it to replace SAFIRE™.
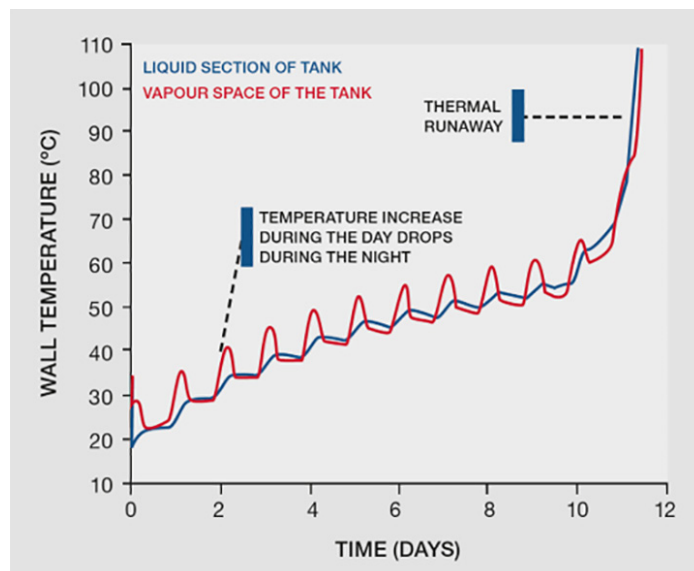
Relief System Design & Evaluation

Design and evaluate your full scope of relief systems — from simple pump systems, up to dynamic reactors with complex loading procedures.

- Define all equipment types, relief device isometrics, and complex mixtures.

- Choose calculation models built per common standards to evaluate your relief requirement, relief device capacity, and stablity.

- Generate concise yet in-depth reports for your relief systems, ready for any review or audit.

Flare & Network Evaluation

Evaluate the performance of your flare network, and the effect of its design on the functionality of your individual relief devices.

- Define your flare network isometric in separate nodes.

- Import your previously calculated individual relief device evaluations.

- Evaluate your flare, from simple converging flows to complex diverging flows.

An example of the dynamic modelling of a vessel under solar heating, which results in a thermal runaway reaction.

Thermodynamics & Reactivity

The correct modeling of mixtures is at the core of relief system design for many complex systems. SuperChems® offers a suite of tools for these complex mixtures and reactions.

- Model complex mixture interactions using the advanced thermodynamic package.

- Chemical reactions can be defined and used within dynamic models.

Remove Inadequacies Through Refined Modeling

Using broad stroke simplified modelling with assumptions can often lead to inadequacies. With the advanced models within SuperChems® these simplified assumptions can be removed, leading to a potential removal of inadequacies.