SIMTECH RELIEF®

专业的泄放分析与工程计算软件

SIMTECH RELIEF®是 SimTech 自主开发的专业用于石油石化行业安全阀泄放和紧急泄压分析与工程计算的工具软件。***SIMTECH RELIEF®***使工程师能采用最新版 API Standard 521 等国际通行规范的方法，分析各种可行的泄放工况、计算其最大泄放量并采用 API 520 的方法计算安全阀尺寸。报表系统将泄放量的计算结果以安全阀数据表、装置和全厂泄放量汇总表等方式展示和输出。其应用范围涵盖泄放分析、安全阀计算和火炬系统评估等领域。

SIMTECH RELIEF® v1.0 具有如下基本功能：

- 软件界面：简洁易用的用户界面，采用微软的 Framework 4.0 结构，内嵌 VISIO 用于流程图的生成和管理，内嵌数据库用于管理工程数据，拥有完整单位制并支持自动转换。
- 模拟软件接口：支持导入 PRO/II 模型并通过 PRO/II 执行必要的计算和输出。
- 泄放分析和泄放量计算：对塔类、容器（分离器）类、换热器类、压缩机类、反应器循环、常压储罐类等设备，对各种适用的超压工况（如局部停电和全厂停电、停水、出口堵塞、回流中断、串压、紧急泄压、火灾等）进行分析和泄放量的计算，分析方法和计算模型完全符合国际通行的规范（API 521、API 2000 等），并采纳了国际大型工程公司的规范和经验。
- 报表：生成可定制的安全阀数据表、装置泄放量汇总表、全厂泄放量汇总表，支持国内关于泄放量加和的规范；

SIMTECH RELIEF® v2.0 将有如下新功能：

- 支持 Aspen Plus 的输入导入：支持导入 Aspen Plus 模型并通过 Aspen Plus 执行部分计算和输出。
- 安全阀尺寸计算：基于泄放分析得到的泄放量，采用 API 520 和 526 的方法进行安全阀的尺寸计算与选型，并核算安全阀进出口管道尺寸。
- 泄放数据的处理：包括泄放量的比较、加和、缩减分析建议并支持缩减数据的输入，并由此确定安全阀最苛刻工况、全装置的最大泄放量。
- 火炬系统软件接口：将 ***SIMTECH RELIEF®***计算的泄放数据导入 Visual Flare 和 FlareNet 进行火炬系统水力学计算。
- 与动态模拟的连接：根据分析结果生成初步的动态模拟（Dynsim）的设备模型，用于进一步的泄放量缩减分析。动态模拟缩减后的泄放数据能传回 ***SIMTECH RELIEF®*** 中。

SIMTECH RELIEF®

Professional pressure relief analysis and calculation software

SIMTECH RELIEF® is a professional analysis and calculation program for pressure relieving and depressuring systems in hydrocarbon processing and chemical industries. ***SIMTECH RELIEF®*** can enable engineers efficiently evaluate the relief and depressuring rates at all applicable contingencies by using methodologies complying with latest API Standard 521 and size the pressure relief device by API Standard 520 methods. All the data can be properly managed, summarized and reported in an easy-to-use graphical user interface. Applications range from pressure relief analysis and PSV sizing to flare system evaluation.

FEATURES of SIMTECH RELIEF® v1.0

- User Interface: easy-to-use graphical user interface based on MS Framework 4.0 structure; built-in MS VISIO for flowsheet of protected system; dedicated database for engineering data management; full suite of Unit of Measure and automatic conversion.
- Interface to simulator: PRO/II model can be imported to generate required information for the protected systems; Flash and other necessary simulations are done through PRO/II's COM interface.
- Relief analysis and relief load determination: Protected systems are categorized into Column, Drum, Heat Exchanger, Compressor, Reactor Loop and Atmospheric Storage Tank. Methodologies of relief scenario and relief load determination for the protected systems are compliant to the latest API standard 521 and API 2000.
- Report: Available reports include customizable PSV datasheet, process unit and plant wide relief load summary tables. Relief loads in general failure scenarios are summarized by direct summation which is most conservative and those widely used rules-of-thumb of 100-50-50 or 100-30-30.

FEATURES of next release

- Interface to Aspen Plus simulator: Interface to Aspen Plus will be developed as that done for PRO/II.
- PSV sizing: Based on methods in API standard 520, PSV sizing can be done in within ***SIMTECH RELIEF®.*** PSV selection feature based on API 526 will also be available.
- Relief data treatment: Relief data will be ranked in terms of its quantity to enable engineers to quickly determine the largest individual relief sources. Scenarios with mitigation measures can be re-analyzed.
- Interface to hydraulics simulator: Relief data can be exported to commercial hydraulics simulators for flare system including SimSci's Visual Flare and AspenTech's FlareNet.

- Link to dynamic simulator: Based on available information and calculation results, data can be exported to commercial dynamic simulator(SimSci's Dynsim) to initiate a primary dynamic model for specified protected system for further dynamic relief analysis. In addition, mitigated relief data by dynamic simulator can be transferred back to ***SIMTECH RELIEF®.***