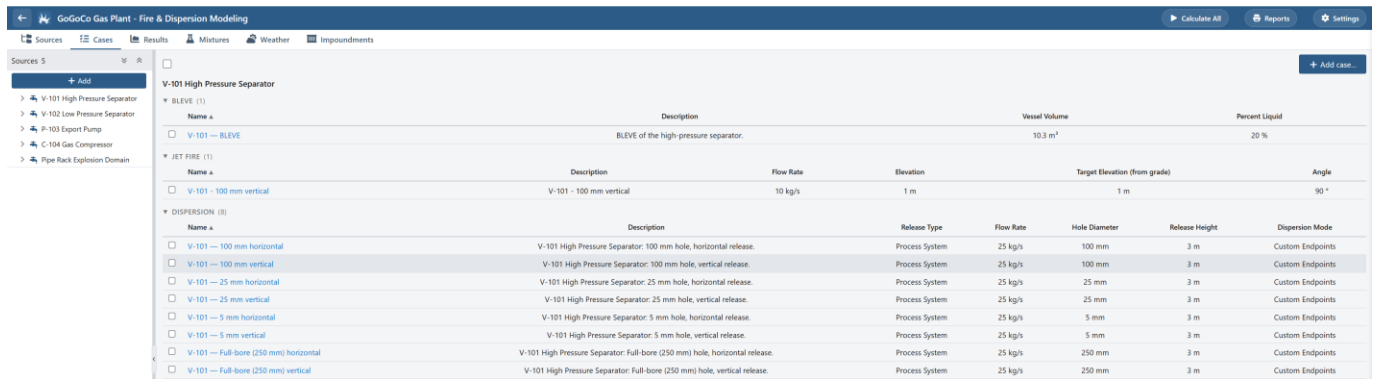


Advanced Consequence and Hazard Modeling

Determine the extent of facility consequence magnitudes with precision. By seamlessly combining source term models and hazard models, **Kenexis® Consequence Modeling** allows process safety professionals to accurately map the footprint of toxic gas clouds, flammable gas clouds, thermal radiation effects, and explosion overpressure (blast waves).

Powered by **CANARY by Quest™**

Kenexis® Consequence Modeling leverages an industry-leading software engine to deliver robust thermodynamic calculations and fluid release simulations, allowing you to enter and run complex cases in a matter of minutes.



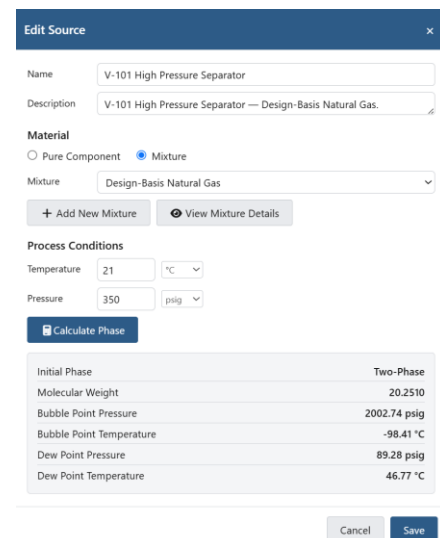
Name	Description	Flow Rate	Elevation	Target Elevation (from grade)	Angle
V-101 — 100 mm vertical	V-101 High Pressure Separator: 100 mm hole, vertical release.	10 kg/s	1 m	1 m	90 °
V-101 — 100 mm horizontal	V-101 High Pressure Separator: 100 mm hole, horizontal release.	25 kg/s	100 mm	3 m	Custom Endpoints
V-101 — 25 mm horizontal	V-101 High Pressure Separator: 25 mm hole, horizontal release.	25 kg/s	100 mm	3 m	Custom Endpoints
V-101 — 25 mm vertical	V-101 High Pressure Separator: 25 mm hole, vertical release.	25 kg/s	25 mm	3 m	Custom Endpoints
V-101 — 5 mm horizontal	V-101 High Pressure Separator: 5 mm hole, horizontal release.	25 kg/s	5 mm	3 m	Custom Endpoints
V-101 — 5 mm vertical	V-101 High Pressure Separator: 5 mm hole, vertical release.	25 kg/s	5 mm	3 m	Custom Endpoints
V-101 — Full-bore (250 mm) horizontal	V-101 High Pressure Separator: Full-bore (250 mm) hole, horizontal release.	25 kg/s	250 mm	3 m	Custom Endpoints
V-101 — Full-bore (250 mm) vertical	V-101 High Pressure Separator: Full-bore (250 mm) hole, vertical release.	25 kg/s	250 mm	3 m	Custom Endpoints

Core Capabilities

Advanced Multicomponent Thermodynamics

Build custom mixtures that reflect your real-world processes. Our engine supports mixtures of up to 10 components, drawn from an extensive built-in database of over 250 components. Kenexis® Consequence Modeling effortlessly handles complex materials, including:

- *Liquefied gases*
- *Light hydrocarbons*
- *Heavy hydrocarbons and aromatics*
- *Toxics*
- *Refrigerants*



Edit Source

Name: V-101 High Pressure Separator

Description: V-101 High Pressure Separator — Design-Basis Natural Gas.

Material

☐ Pure Component ☒ Mixture

Mixture: Design-Basis Natural Gas

[+ Add New Mixture](#) [View Mixture Details](#)

Process Conditions

Temperature: 21 °C

Pressure: 350 psig

[Calculate Phase](#)

Initial Phase	Two-Phase
Molecular Weight	20.2510
Bubble Point Pressure	2002.74 psig
Bubble Point Temperature	-98.41 °C
Dew Point Pressure	89.28 psig
Dew Point Temperature	46.77 °C

[Cancel](#) [Save](#)



Dynamic Fluid Release Simulation

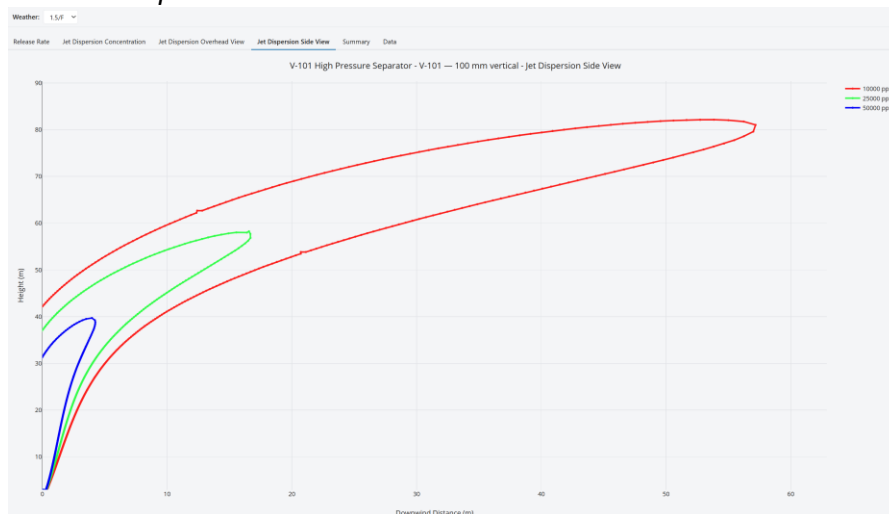
Integrate multicomponent thermodynamics directly into time-varying fluid release simulations. Kenexis® Consequence Modeling accounts for complex physical behaviors, including:

- Two-phase flow and flash vaporization
- Aerosol formation and liquid rainout
- Vaporization from liquid pools (factoring in pool spreading, heat transfer effects, and impoundment)

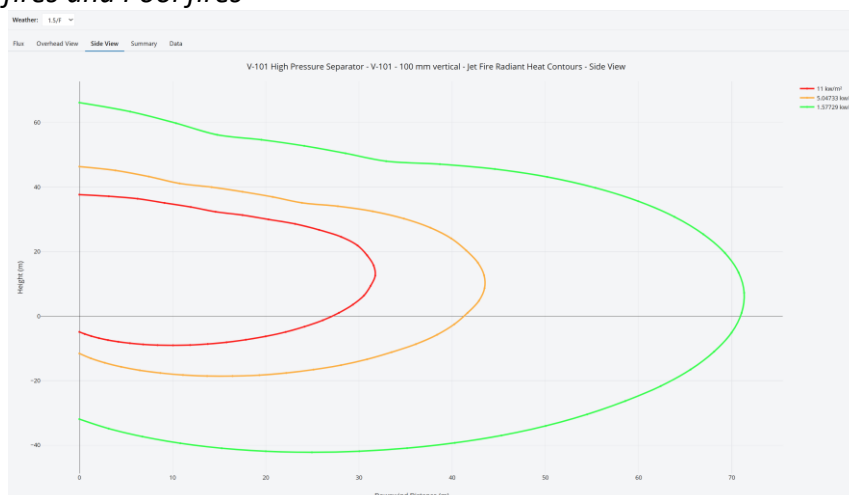
Comprehensive Consequence Models

The data generated by our fluid release simulations forms the foundation for highly accurate hazard models. Kenexis® Consequence Modeling includes dedicated models for:

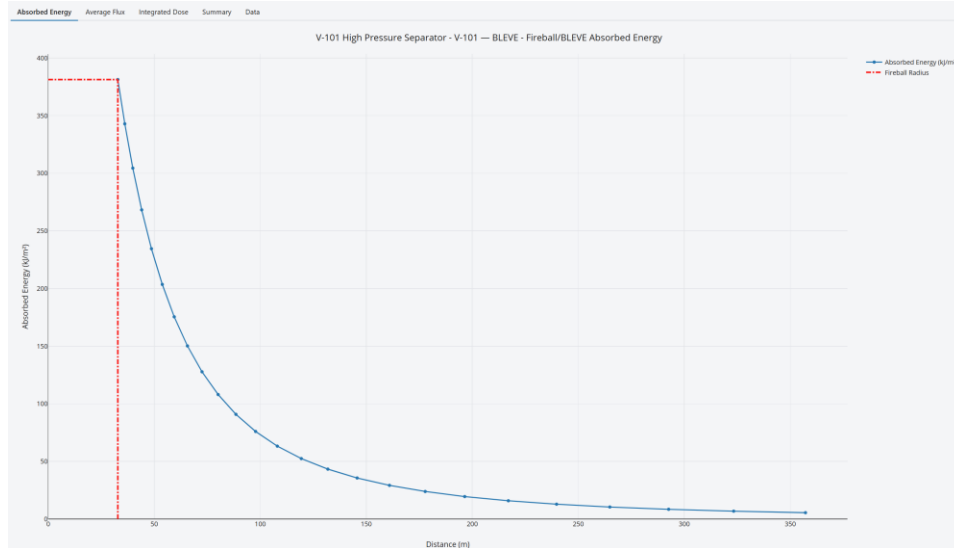
- Vapor cloud dispersion



- Jet fires and Pool fires



- *BLEVE (Boiling Liquid Expanding Vapor Explosions)*



- *Vapor cloud explosions*

Customizable Hazard Endpoints

Define the exact hazard thresholds your study requires. Users can easily set endpoints for **Gas Concentration**, **Radiant Flux**, and **Overpressure**.

Edit Dispersion Case
×

Release Conditions
Piping, Inventory & Valves
Dispersion Settings

Dispersion Calculation Type

☐ Flammability
☒ Custom Endpoints
☐ Individual Component

Dispersion Averaging Time

18.75

s

▼

High

50000

ppm

Medium

25000

ppm

Low

10000

ppm

Cancel

Save

Industry Applications

Kenexis® Consequence Modeling is built for flexibility and intuitive use, making it the ideal consequence analysis tool for scenarios involving pressure vessels, atmospheric tanks, well bores, pipelines, and more.



Streamline your process safety workflows across a wide range of applications:

- **Facility Siting and Layout Studies**
 - *API RP 752 for building siting*
 - *API RP 753 for siting portable buildings*
- **Pipeline Hazards Assessment**
 - *Potential Impact Radius (PIR) studies*
 - *High Consequence Area (HCA) analysis*
- **Input into Risk-Based Studies**
 - *Quantitative Risk Analysis (QRA)*
 - *Safety cases*
 - *Transportation risk analysis*
 - *Fire & Gas Mapping*
- **Pressure Relief & Venting Hazards**
 - *Optimizing relief locations*
 - *Sizing of vents and flares*
- **Compliance & Emergency Readiness**
 - *Planning for emergencies*
 - *Code-required consequence analysis studies*

About Kenexis

Kenexis, an independent consulting engineering firm that provides technical safety services for process industries, and other industries that manage risks related to chemicals or stored energy. Kenexis is helping change the way that safety and security are incorporated into industrial business practices by providing best-in-class software tools, associated training, and comprehensive technical support.

