

# **EFFECTS & RISKCURVES for new energy carriers**

**Reliable consequence and risk  
analysis software tools to support  
safe energy transition initiatives**

## EFFECTS & RISKCURVES software tools offer functionalities for new energy carrier applications



Analysing the consequence of ammonia dense gas dispersion



Analysing societal risk map of ammonia incident



**EFFECTS** is an advanced yet user-friendly software tool to analyse the effects and consequences of the accidental release of flammable and toxic chemicals in process facilities. It calculates heat radiation from fires, overpressure from explosions, toxic concentrations, and dose from dispersion clouds, and much more.



**RISKCURVES** is a comprehensive software tool to perform Quantitative Risk Analysis (QRA) to assess the total risk of storing, handling, and transporting dangerous substances in process facilities. The software presents calculation results in a range of ways, including location-specific individual risk contours (LSIR), fN curves, societal risk maps, and risk ranking reports.

EFFECTS and RISKCURVES were originally developed based on the Coloured Books and have been continuously expanded and improved for more than 35 years to ensure it is kept up to date with the most recent research and scientific data, including for new energy carrier applications.

## Features and benefits

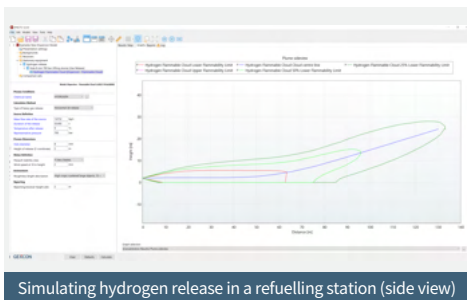


Simulating hydrogen release in a refuelling station

### Dispersion model with automatic behaviour detection

Ability to simulate all possible dispersion behaviour, including:

- Dense gas dispersions (e.g., cryogenic LNG releases, liquefied ammonia releases, LPG releases).
- Neutral gas dispersions (e.g., for chemical with similar density to air).
- Lighter than air gas dispersions (e.g., hydrogen and ammonia).



Simulating hydrogen release in a refuelling station (side view)

### High-speed jet releases and ground effects

- More accurate simulation of high-speed jet releases, to better simulate highly pressurised hydrogen releases (commonly stored and transported at very high pressures – up to 900 bar).
- Improved modelling to account for plume reflection against the ground and enhanced turbulence, e.g., simulating natural gas releases.



Analysing the consequence of hydrogen explosion

### Authoritative fire and explosion calculations for hydrogen safety applications

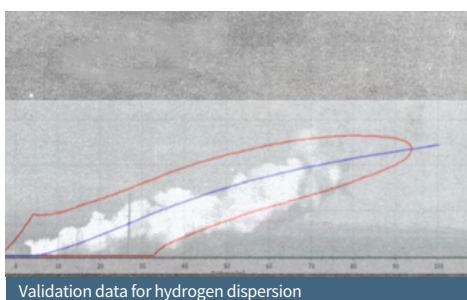
- The fire models account for hydrogen's very low surface emissive power.
- A gas fireball model is available to calculate the instantaneous release of gas hydrogen (as it should not be modelled as a BLEVE).
- The Multi-Energy model is used to simulate explosions and can consider hydrogen's high reactivity and fast laminar burning velocity.



Viewing individual risk grid and societal risk as geographical result

### Streamlined consequence and risk analysis

Use recently added functionality to import the new energy carriers' consequence and lethality footprints from various consequence modelling tools available in the market to calculate risk in RISKCURVES.



Validation data for hydrogen dispersion

### Reliable results

The software is extensively validated for simulating hydrogen hazards, such as hydrogen jet fires, gas fireballs, and buoyant rising plumes.



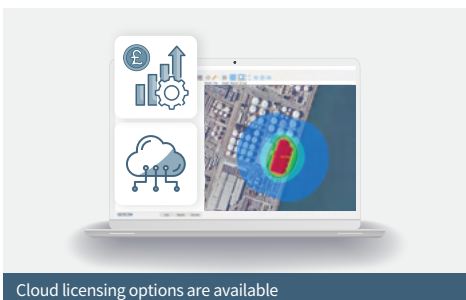
## Intuitive user interface

Modern and intuitive look with features that make the software easy and straightforward to use both by expert and occasional users.



## Improved results visualisation

Easily export results into Google Earth with just few clicks. This improves results visualisation which makes them easy to understand by both technical and non-technical professionals.



## Cost-effective with flexible licensing options

The pricing allows you to use professional software regardless of if you are a large multinational company or a small engineering firm. Save considerable on license costs and have full flexibility to use your license wherever you work, worldwide.

### About Gexcon

Gexcon is a world-leading company in safety and risk management. We help our clients identify, prevent, and mitigate toxic and flammable hazards in their facilities. Our key solutions include consequence and risk analysis software, incident investigation and expert witness, process safety and risk management consulting, and fire and explosion testing.

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