

Reaction Calorimetry in Process Development

Simular

Understand the thermodynamics and kinetics of your process under isothermal or non-isothermal conditions for safe scale-up. Reaction calorimetry provides data to enable the safe running of chemical processes.



Simular (Glass Reactor)



Simular (Metal Reactor)

Optimizing Reactions for Scalability and Safety

The **Simular** is a reaction calorimeter designed to investigate the thermal properties of a chemical reaction under the intended operating conditions. The thermodynamic and kinetic information obtained can be used for the optimization of process conditions for maximized conversion while minimizing safety hazards.

Isothermal calorimetry

The **Simular**, can be operated in two isothermal modes:

- the well known heat flow method
- the H.E.L method of power compensation, which is very responsive

Non-isothermal calorimetry

The **Simular** can also be operated in two non-isothermal modes: ramped and reflux, for more specific applications.

Mitigating thermal hazards

The **Simular**, alongside the **Phi-TEC I** and the **Phi-TEC II**, can also be used to help identify the operating conditions required to minimize safety risks. Please see our **Process Safety & Scale-Up** portfolio for more information on our hazard screening solutions and how reaction calorimetry can be applied to process safety.

Configurable Design

The **Simular** is a flexible platform that can be adapted to suit individual needs (e.g., dual-reactor capability, high and low pressure options). Please **contact us** to discuss your specific requirements.



About H.E.L Group

H.E.L Group's mission is to work together with chemistry, safety and biotechnology experts to engineer and unleash the full potential of the scientific community. To this end, H.E.L develops and manufactures innovative scientific instruments and software designed to optimize the efficiency, safety and productivity of key processes in chemistry and biology applications.

The H.E.L team includes highly skilled process and software engineers, based at their extensive research and manufacturing facilities in the UK, as well as sales and support offices around the world.

H.E.L has a long history of solving complex challenges for customers. For more than 30 years the company has worked with businesses and laboratories globally, providing proprietary automated solutions for the pharma, biotechnology, chemical, battery and petrochemical sectors. H.E.L is accredited with ISO 9001 : 2015 and ISO 14001 : 2015.

- With a strong focus on the customer, our **service and support** enables our customers to keep working efficiently
- Our **wide range of customizable products** put the customer at the heart of what we do, with solutions designed around their needs



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