

The future of reaction screening is here

Technobis is a world-leading laboratory technology provider for chemical synthesis, solid-state research, process development and formulation. As a Dutch-based company with over 25 years' experience, its mission is to help scientists globally become more successful and efficient.



In 2024, Technobis expanded its instrument portfolio beyond crystallization R&D - where it set the standard for technological innovation for years - and into chemical process R&D. With the game changing ReactALL™, it empowers process chemists to successfully screen and optimize their reaction experiments for production, with unprecedented efficiency.

Assisting chemists in early research decisions

Process chemistry focuses on optimizing laboratory-scale chemical reactions for large-scale industrial production, ensuring processes are safe, cost-effective, and environmentally friendly. As such, it plays a key role in the manufacturing of everyday products like medicines, fuels, and consumer goods, impacting their availability, quality, and affordability.

To optimize the transition from laboratory scale to industrial scale, scientists need accurate insights early on. Accelerating in-depth chemical understanding is therefore a key goal of the ReactALL™. The instrument allows scientists to carry data-rich experiments (such as screening reactions for the best reagents, catalysts and conditions; optimising reaction yield, selectivity and impurity control; mechanistic profiling; etc.) and obtain high quality results early in product development. By being able to draw the right conclusions, as early as possible, scientists save valuable time and costs, and speed up the success of their research.

"A guiding ethos at Technobis is 'Help research succeed'. ReactALL™ will transform the way

chemists conduct medium throughput research and, in the pharmaceutical industry, which is close to my heart, bring medicines to market faster than ever before. Technobis wants to take its expertise in crystallization R&D equipment further, using our knowledge and experience to enable process chemists to make leaps forward for the whole industry's benefit." – John de Kok, CEO of Technobis.

About ReactALL™

ReactALL™ is an innovative benchtop multi-reactor system with automated sampling and overhead stirring for medium-throughput experimentation, designed for chemical reaction screening, optimization, route scouting, and process development. The instrument was developed with scientific input from Pfizer.

The advantages of using the instrument in chemical process R&D include:

- Innovative SmartCap™ technology that ensures integrated automated sampling, quenching, and dilution directly into HPLC vials for a streamlined workflow.
- Overhead stirring without grinding solids and uniform mixing even in heterogeneous sample environments, thanks to stirrers designed with the aid of Computational Fluid Dynamics. Scientists no longer have to worry about their sample's chemistry being altered.
- Obtain high data richness at just 5 - 10 mL reaction volume, saving valuable starting material.
- Conduct multiple experiments simultaneously, using the instrument's 5 independent temperature-controlled reactors.
- Get the right insights with advanced, in-line analytics including particle visualization colour cameras and integrable Raman spectroscopy probes, that provide crucial information on physical and chemical state changes, such as dissolution and precipitation, colour changes, and much more.
- Save up to 76% of the reaction screening time by running automated experiments during nights and weekends.
- Enjoy a high level of interoperability and robotic integration thanks to open APIs.

Ready for the Lab of the Future

"It's essential that ReactALL™ fits into the lab of the future and industry 4.0 compatibility is

key there. Our software engineers have enabled interoperability with pretty much anything you might want in your workflow." – Stephan van Banning, CTO at Technobis

For example, ReactALL™ could run reactions and automatically take, quench and dilute samples into HPLC vials. A pre-loaded SmartCap™ could be loaded in ReactALL™ while a robotic arm could then transport the sample vial trays to the HPLC machine. The chemist would need only 30 minutes for setting up the reactions and the next day, they already have the HPLC data.

Streamlining the laboratory workflow

Easy integration into existing workflows is crucial for adoption of any new equipment, so this was a key consideration for Technobis from the first day of development for ReactALL™. Reports from customers say clearly that the revolutionary new instrument is user friendly and fits straight into their workflows. The time reclaimed by automating sampling in reaction screening experiments outside of working hours makes ReactALL™ a must have instrument.

"As a chemist myself, I understand the transformation that this instrument will bring to laboratories' workflows. The ability to obtain such data rich results at such an early stage of research, with such small reagent volume requirements, will save significant time and money." – Dr. Carmen Guguta, Global Head of Business Development and Marketing for Technobis.



Technobis sees that automation and interoperability of devices are at the forefront of the wave of change that is sweeping analytical laboratories. It aims to use its vast knowledge and experience to become a thought-leader in process chemistry R&D and support scientists from the first step to last step in the research ecosystem.

For more information visit:
www.crystallizationsystems.com