

freestate JUNIOR

Process Chemistry



UNCHAINED
LABS

End old routines

Walk up, set up your run and walk away. Freeslate jr. turns reaction screening and process optimization into totally routine activities. Build a system for reaction screening and plow through hundreds of modifications per week. Deck one out with real-time sampling to fine tune your chemistry pathways. Freeslate jr. lets you dive deep so you know exactly what tweaks to make next.

- Process optimization
- Screen continuous variables
- Screen discrete variables
- Optimize and screen new synthetic routes
- Improve yields and impurity profiles
- Optimize catalyst loading
- Map process robustness



Dial in your process

Freeslate jr. lets you check out a ton of reaction screening variables like solvents, ligands, catalysts and reagents all at once. It'll plow through hundreds of modifications per week. Outfit one with an Optimization Sampling Reactor (OSR) to grab samples from your reactions as they're happening and know even more right now.



- | | |
|---------------------------------|--------------------------------|
| 1 Solvent tray | 4 Wash station |
| 2 Optimization Sampling Reactor | 5 Heating/cooling/stirring bay |
| 3 3-Position vortexing station | 6 3-Position plate rack |

Find the sweet spot

Going the one variable at a time route doesn't cut it when you need to know how all your different reaction variables play together. Add an Optimization Sampling Reactor (OSR) to freeslate jr. and get real-time kinetics on all your reactions. OSR grabs time-point samples from up to 8 pressure and temp-controlled vessels at a time without interrupting a single reaction. Each vessel makes sure the heating, cooling and stirring for each of your reactions is just right.



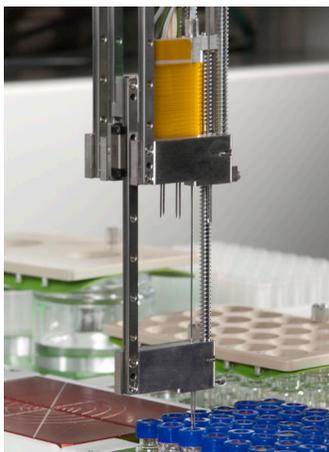
Optimization Sampling Reactor

Cover all the bases

Freeslate jr. screens all your substrates, catalysts, reactants, solvents and reaction conditions so you can tackle a huge range of organic transformations. Dead-on dosing of small amounts of solids, liquids, slurries and viscous reagents keeps use of precious and expensive materials at an all-time low when prepping your reaction solutions. Tight reaction control, stir plate temps, filtration and dilution means your samples are ready for structural analysis whenever you are.



Solid dispensing tools



Heated 4-tip
liquid dispenser



Heating/cooling/stirring
station

Take reactions higher

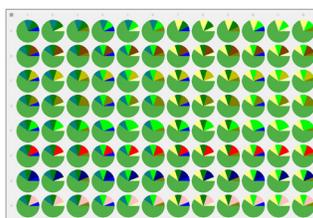
Ultra-high temp and pressure reactions are no problem with the Screening Pressure Reactor (SPR). Run up to 96 experiments in parallel automatically and kick things up to 400 °C and 200 bar (3000 psig). Tie an SPR in with freeslate jr. for reaction screening and see if maxing temps and pressures gets your chemistry where you want it to go.



Screening Pressure Reactor

Break through bottlenecks

LEA doesn't move the bottleneck, it totally unclogs it. You get intuitive experimental design that makes sense on the front end and full integration with analytical tools on the back end. LEA also links your conditions, steps and analytical data together, so your final report doesn't just have numbers, it's got all the information you need to make real decisions.

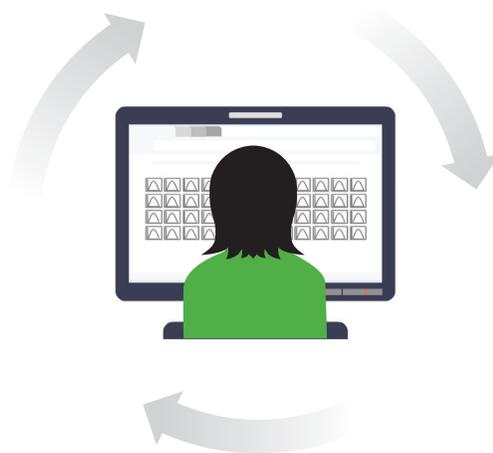
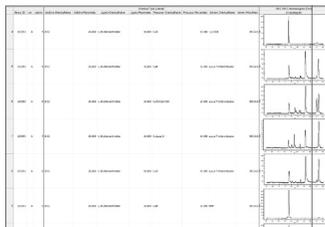


Library Studio

Design complex, high-throughput experiments in an array-based format

PolyView

Review and report all info from experimental design, execution and analytics



Automation Studio

Execution of designed experiments and integrated analytics



Unchained Labs

6940 Koll Center Pkwy, Suite 200

Pleasanton, CA 94566

Phone: 1.925.587.9800

Toll-free: 1.800.815.6384

Email: info@unchainedlabs.com

© 2016 Unchained Labs. All rights reserved. The Unchained Labs logo and freeslate jr. are trademarks and/or registered trademarks of Unchained Labs.