

freelate

Process Chemistry



UNCHAINED
LABS

Gear up for anything

Freeslate makes optimizing your chemistry a synch – and it's totally configurable for reaction screening and catalysis optimization workflows. Freeslate's array-based, micro-scale take on processing, sampling and analytical work-up gets you to primo conditions without even breaking a sweat. Test and screen more variables than ever, and know exactly what your chemistry's up to at every step.

- 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 lets you make additions and grab samples from your reactions while they're happening. You'll have a whole new level of insight into what your small process tweaks do in real time. Take it to the next level and screen both discrete variables like catalyst precursors and ligands and continuous variables like temperatures, pressures and time. Pinpoint key process variables, map out reaction profiles, identify high yield and selectivity conditions, and optimize synthetic routes – all on the same system.



- | | | | |
|---|--------------------------------|---|------------------------------|
| 1 | Vial/plate gripper | 6 | Solid dispensing tool rack |
| 2 | Waste bin | 7 | Heating/cooling/stir station |
| 3 | Balance with integrated camera | 8 | Capping/decapping station |
| 4 | PDT rack | 9 | 1-Tip liquid dispenser |
| 5 | Vortexing station | | |

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 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.



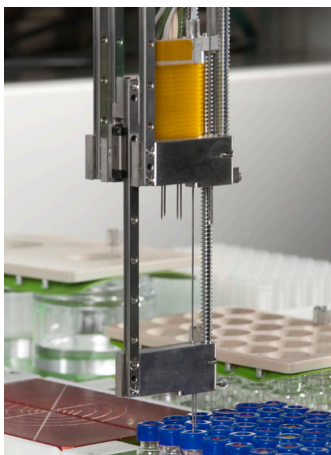
Optimization Sampling Reactor

Cover all the bases

Freeslate 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

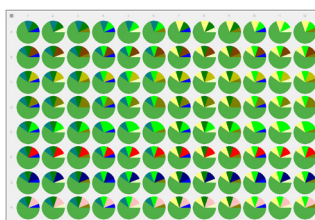
Ultra-high temp and pressure reactions are no problem with the Screening Pressure Reactor (SPR). Run up to 96 experiments in parallel automatically and kick things up to 400 °C and 200 bar (3000 psig). Tie an SPR in with freeslate for reaction screening and see if maxing temps and pressures gets your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

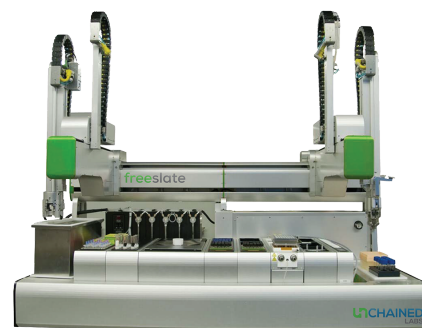
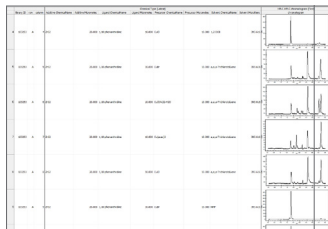


Library Studio

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



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