

Chemocatalysis

Delivering selective and sustainable
Chemocatalytic processes



Chemocatalysis is employed in routes of synthesis to effect superior selectivity, yield and atom economy. The optimisation of a chemocatalytic reaction requires multiple experiments to identify optimal conditions such as catalyst, its loading, the solvent, temperature and pressure. Sai Life Sciences has the capability for high throughput screening combined with Design of Experiments (DoE) to study a range of chemocatalytic processes that can ensure a smooth scale-up from gram to multi kilo scale.

Highlights

- Proven track record of leveraging chemocatalysis
- Experience spanning from gram to multi kilo scale
- Consistently meet or exceed customer expectations on catalyst loading, reaction time and product isolation
- Strong team across Manchester and Hyderabad with extensive experience in the field
- Robust network with all leading catalyst developers and manufacturers ensuring quick availability at lab, pilot and manufacturing scale
- Offer FTE collaboration for new route scouting projects

Capabilities

- Routine evaluation of projects for opportunities to implement chemocatalysis
- Parallel screening equipment for homogeneous and heterogeneous catalysts with dedicated analytical support
- Hydrogenation and reaction screening and optimisation at high pressure and temperature
- KitAlaysis™ high throughput screening kits for a variety of reactions
- Efficient removal of metals to the desired specification using various metal scavengers and filtration techniques
- Accurate metal analysis with in-house ICP-MS
- Continuous upgrade and modernisation of chemocatalysis capabilities

Infrastructure

- Radleys Carousels (12 reactions from 1ml to 20ml; Temp: -78° C to 220° C)
- Software-enabled Radleys Mya-4 (4 to 32 reactions from 2 to 250ml; Temp: -20° C to 180° C)
- Fully automated AmigoChem Integrity 10 (Temp: -30° C to 150° C)
- HEL PolyBlock 4 (4 independent reaction zones; Temp: -60° C to 225° C)



- Hydrogenation and pressure reactions
 - HEL Chemscan (40-50ml; Temp: -20° C to 225° C; Pressure: up to 12 bar)
 - Amar Instruments (100ml; Temp: 0oC to 300oC; Pressure: up to 80 bar)
- Andrews Alliance Robot to accelerate liquid handling

Illustrative Cases

- Asymmetric hydrogenation of acetophenone derivative at 2kg scale with 4 mol% catalyst (Yield: 85%; ee: >99.5%)
- Asymmetric hydrogenation of cyclic ketones demonstrated at 100kg scale with 2 mol% catalyst (Yield: 85-90%; ee: >99%)
- Asymmetric transfer hydrogenation to produce 1,3-diamines (Yield: 75%; ee>95%)
- Refined Suzuki cross-coupling to demonstrate a 73% isolated yield on >150g scale, ready for further scale-up

For more information contact: contact@sailife.com