

Smart, safe and clean chemistry

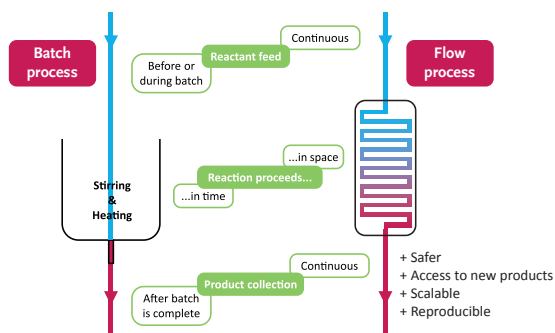
Flow Process Implementation



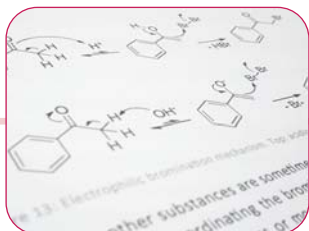
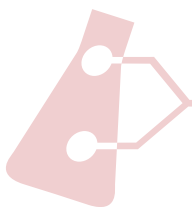
General

Need help with your process? Or too early to step into the game and first want a feasibility on your process? We have a team and equipment available for you to help you finding the best starting point for your flow chemical process, we can find optimal conditions, or find the reaction kinetic data for you. We have access to all regular analysis equipment such as HPLC, GC, MS, UV-Vis, IR, NMR, electron microscopy and many more.

Batch vs. Flow Process



Example applications



Small molecules



Photochemistry



Nanoparticles

Flow Process Implementation

Phase 1 - Flow process consultancy

- Thorough evaluation of customer requirements
- Deliverables:
 - A report on the possibilities in flow process
 - Project proposal Phase 2
 - Assistance with business case

Phase 2 - Proof of principle

- Translation of batch process to highly controlled scalable flow process
- Feasibility investigated in the laboratory
- Deliverables: sample of material and report, project proposal for Phase 3

Phase 3 - Process development

- Product and process development to meet customers quality specifications
- Up-scaling to proof-of-concept quantities
- Design of the chemical process and conceptual design of manufacturing equipment
- Deliverables: production samples, analysis, MSDS, project proposal for Phase 4

Phase 4 - Implementation

- Up-scaling and production
- Deliverable: implemented process equipment



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Selection of available capabilities:

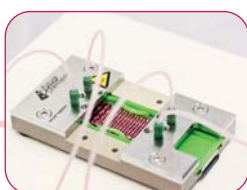
Photochemistry
Radiochemistry
Nanoparticle formation
GC-FID, GC-MS
LC-UV, LC-ELSD
NMR ¹H, ¹³C, ¹⁹F, ³¹P

DLS, Particle tracking
UV-Vis
FTIR
MS-ESI, MS-FAB
SEM, TEM

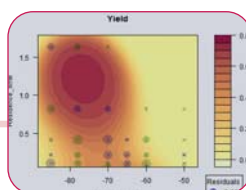
Phases:



Phase 1:
Flow process
consultancy



Phase 2:
Proof of principle



Phase 3:
Process development



Phase 4:
Implementation