ECOSYNTH
CHEMICAL CONTRACT RESEARCH

# Your partner in ELECTROCHEMISTRY

**EcoSynth provides feasibility studies to explore the potential of electrochemistry as an enabling technology giving access to unexplored chemical space and increased process efficiency**

## Typical electrochemical reactions

- Shono oxidation
- Sulfoxidation
- Kolbe electrolysis
- Hofer-Moest reaction
- Heterocycle formation
- Direct or mediated alcohol oxidations

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## ELECTROCHEMISTRY BENEFITS

- Cheapest redox agent available (1 mol electrons < 0,01 €)
- Most versatile redox agent available (cell potential can selectively be tuned, chemical reagents work at fixed potential)
- Reduction or even elimination of standard, often toxic and environmentally harmful, oxidizing agents
- Mild process conditions (temperature and pressure)
- Higher selectivity (potential to avoid protection/deprotection)
- Potential of late-stage functionalization
- Opens new synthetic pathways (less steps to end product)

## ECOSYNTH'S FEASIBILITY STUDIES

- **Literature evaluation of the electrochemical pathway**
- **Selection of the appropriate electrodes, electrolytes, solvents and (optionally) electromediators**
- **Lab scale screening of reaction components and parameters and further optimization**
- **Support in transfer to pilot scale**

## ECOSYNTH'S CAPABILITIES

### Lab reactors

#### *Electrasyn 2.0 Batch Screener (IKA)*

Cyclic voltammetry
Ambient pressure and temperature
Vial volume: 10 ml
0-10 V – 0-100 mA
Electrodes: Stainless steel, Graphite, Platinum, etc.

#### *AsiaFlux Flow Cell (Syrris)*

Reactor volume: 225 µl
Reaction pressure: 0-5 bar
Reaction temperature: 0 °C up to +60 °C
Homogeneous reaction mixture required
Electrodes: Stainless steel, Graphite, Platinum, etc.

#### *FAVO$^{TM}$ 5 Flow Reactor (Creaflow)*

COSTA$^{TM}$ Technology
- Best-in-class for handling multiphase processes
- Anti fouling/passivation (self-cleaning electrodes)
- Enhanced & tunable mass-transfer

Reactor volume: 5 ml
Reaction pressure: 0-16 bar
Reaction temperature: -20 °C up to +150 °C
Electrodes: Stainless steel, Graphite, Platinum, Nickel, Titanium, Specific materials & coatings (please enquire)
EA-Power supply PS 3040-20 C (0-40 V – 0-20 A)

### Pump systems

Syringe pumps: WPI Europe (AL-300) (AL-1000) (AL-1010) (AE-1000)

HPLC pumps: Thales Nano (Z0053439), Knauer (P2.1S)

Peristaltic pumps: Vapourtec (SF-10 series)

Piston pumps: Ismatic (ISM321C)

Gear pumps: Analogix (0962-1)