



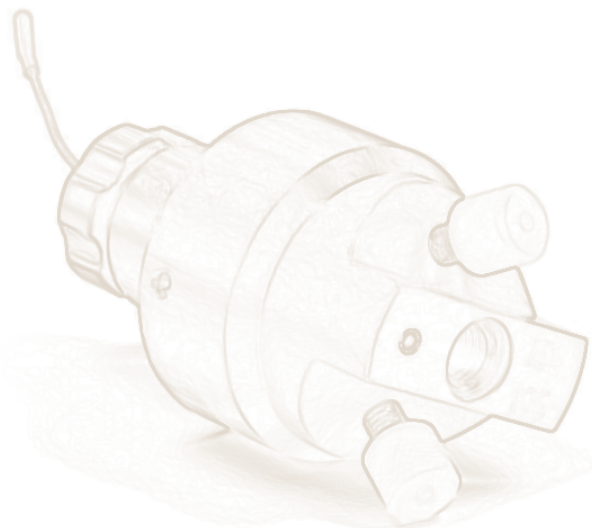
ReactorCell™

Universal Starter Cell

- Universal starter cell for oxidation / reduction / activation
- Virtually zero sample adsorption
- Easy electrode exchange
- Supplied with various working electrodes



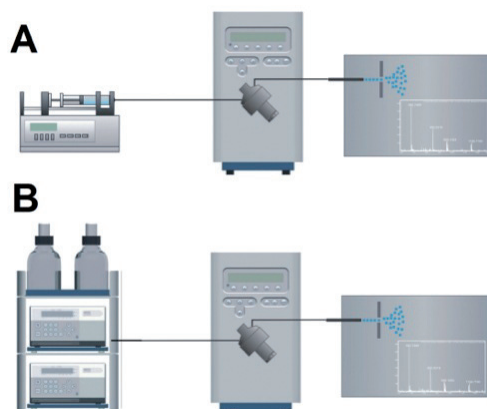
The ReactorCell is a universal flow cell, ideally suited for oxidation, reduction and/or activation of compounds that pass through the cell. For single component analysis, the cell can be used in infusion mode by simply connecting it to a syringe pump for direct EC/MS experiments. For multi-component analyses, the electrochemical cell can be positioned after the (U)HPLC system to perform LC/EC/MS experiments on the separated sample. The cell is controlled via the ROXY Potentiostat while the flow rate and working potential can be optimized using the Dialogue software or dedicated MS software, e.g., XCalibur.





Schematics ReactorCell Set-up

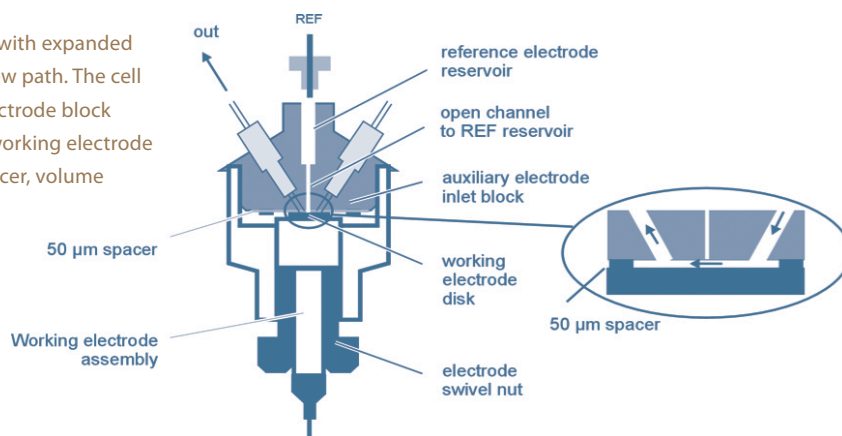
Schematics ReactorCell set-up: Direct infusion mode, i.e., EC/MS (A) and post-column separation mode, i.e., LC/EC/MS (B). Typical flow rates 5 to 20 $\mu\text{L}/\text{min}$.



The ReactorCell is based on a thin-layer flow cell concept, comprising of a very smooth working electrode surface over which the sample is flowing. This results in virtually zero sample adsorption unlike porous flow through electrodes which are prone to adsorption and carry over. The cell can be disassembled within seconds for easy cleaning of the working electrode and cell compartment.

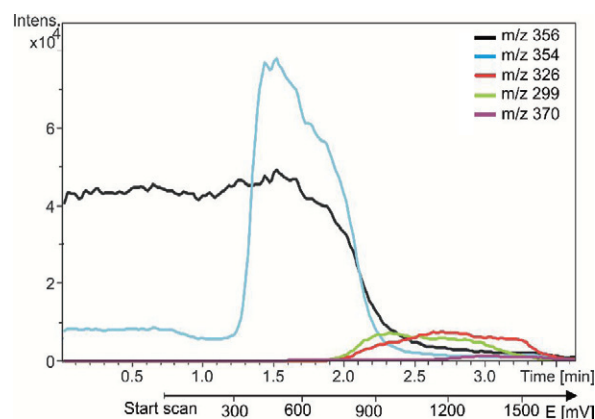
Schematics ReactorCell

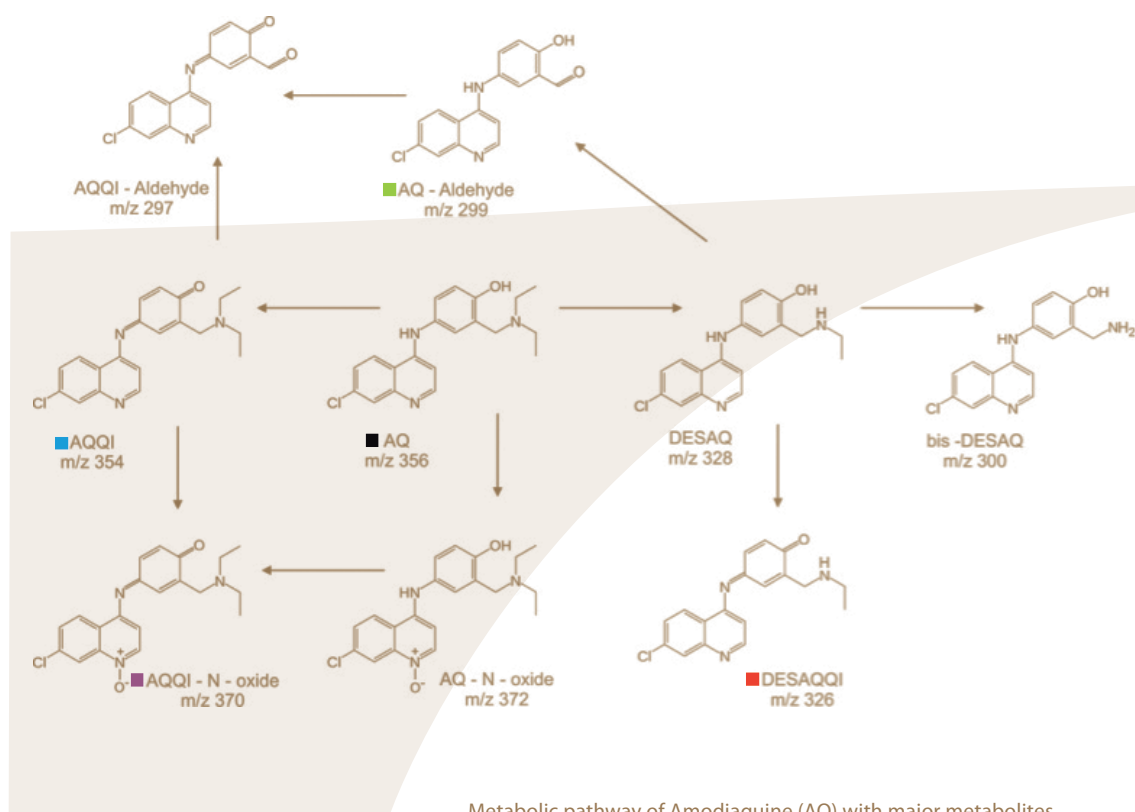
Schematics ReactorCell with expanded view of the thin-layer flow path. The cell includes an auxiliary electrode block with inlet/outlet (top), working electrode (bottom) and 50 μm spacer, volume approx. 0.7 μL .



MS Voltammogram

MS Voltammogram of Amodiaquine (AQ) m/z 356 and its major oxidative metabolites, AQQI m/z 354, DESAQQI m/z 326, AQ-Aldehyde m/z 299 and AQQI-N-oxide m/z 370. Potential scan 0 to 1500 mV in 3.0 min. Flow rate 10 $\mu\text{L}/\text{min}$





Metabolic pathway of Amodiaquine (AQ) with major metabolites

The ReactorCell is supplied with 4 working electrodes, Pt, Au, Glassy Carbon (GC), and Magic Diamond (MD), which can be quickly and easily exchanged. GC is the workhorse and electrode of choice for oxidation reactions up to 2.0 V. For voltages > 2.0 V, MD a conductive diamond electrode is recommended as it can be used up to 4.0 V. Pt and Au are typically employed for specific reactions such as hydroxylation or N-oxidation.

Electrode Holder



Working electrode holder (assembly) with supplied electrodes: Pt, Au, GC and MD (left to right).



Ordering Information ReactorCell

Part no	Description
210.0040	ReactorCell kit consisting of: ReactorCell, spacers, reference electrode (HyREF) and working electrodes: Magic Diamond (MD), Glassy Carbon (GC), Pt and Au (each 1 x).
Spare Parts	
210.0913	HyREF reference electrode
210.2217	Spacer 50 µm
210.5007	Glassy Carbon (GC) working electrode
210.5010	Semi-Precious Metal (SPM) reducing electrode
210.5022	Platinum (Pt) working electrode
210.5032	Silver (Ag) working electrode
210.5037	Copper (Cu) working electrode
210.5050	Magic Diamond (MD) working electrode

Specifications ReactorCell (Universal Starter Cell)

Cell type	Three electrode, thin-layer reactor cell
Cell volume	approx. 0.7 µL (50 µm spacer) , 1.5 µL (100 µm spacer)
Spacers	50 µm, stackable
Working electrode diameter	8 mm
Working electrode area (wetted)	15 mm ²
Working electrodes (WE)	Included: Glassy carbon (GC) , Magic Diamond™ (MD), gold (Au), platinum (Pt), Optional: semi-precious metal reducing electrode (SPM), silver (Ag) and copper (Cu)
Reference electrode	HyREF™ (Pd/H ₂)
Auxiliary electrode	Carbon-loaded PTFE
Wetted materials	PCTFE, FEP, Palladium, carbon-loaded PTFE, WE material (Au or Pt, GC, MD, SPM, Ag, Cu)
Flow rate	Typically 5 – 20 µL/min
Max. pressure	40 psi / 2.8 bar
Fluidic connections	1/16" o.d. PEEK tubing, with 10-32 PTFE fingertight connections
Electric connections	Cell cable for use with ROXY Potentiostat