µ-PrepCell™
High Conversion and Flow Rate

- **Ideal for on-line EC/MS, LC/EC/MS at flow rates of 20 to 100 µL/min**
- **Generation of metabolites, reactive intermediates, S-S bond reduction, etc.**
- **Excellent Conversion Rate**
- **Virtually Zero Sample Adsorption**

The µ-PrepCell is specifically designed for high yields and conversion rates. Compounds passing through the flow cell are instantaneously oxidized or reduced making the cell ideally suited in on-line EC/MS or LC/EC/MS. The cell is routinely applied for in drug metabolism (generation of metabolites), protein chemistry (reduction of disulfide bonds, H/D exchange), environmental degradation, stability testing of nutrients and pharmaceuticals. In continuous infusion mode over several hours, the cell can be used for micro preparative work, generating µg quantities of RE-DOX products.

The surface area of the working electrode is approximately 10 times larger than that of the ReactorCell; therefore a significantly higher conversion rate is obtained using the µ-PrepCell. Since a voltage pulse is used rather than a constant voltage, highest electrochemical stability over extended working periods of up-to several hours is assured. This feature makes the cell well suited for use in post-column separation settings in Protein Chemistry and other "Omics" applications.

Like the ReactorCell, the µ-PrepCell 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 almost zero sample adsorpt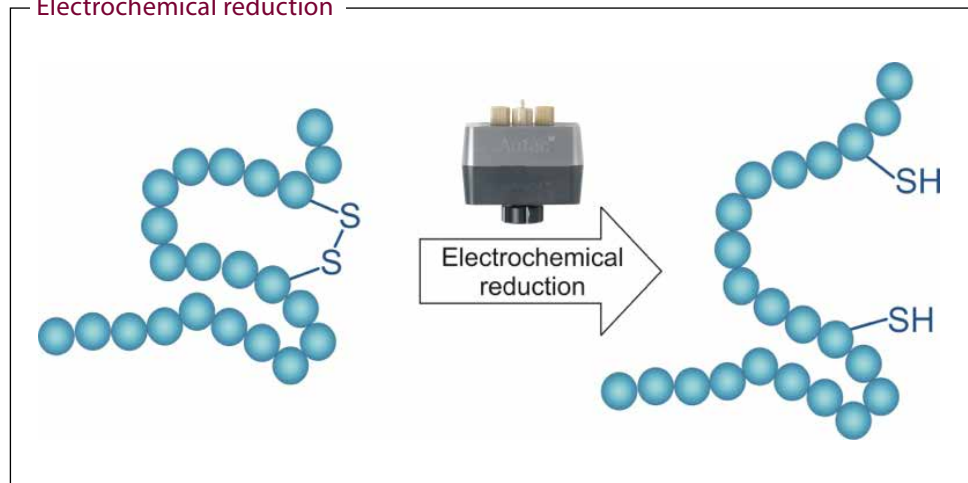ion, unlike the use of a porous flow through electrodes which is prone to adsorption and carries over. The cell can be disassembled within a few seconds for easy cleaning of the working electrode and cell compartment. An additional advantage of using this cell in amperometric mode is the formation of intermediate reaction products including reactive metabolites, useful in the understanding and prediction of the metabolic-, biodegradation- or biotransformation pathway.

The cell is used with the ROXY Potentiostat or integrated in the ROXY EC or ROXY EC/LC system, respectively. The flow rate and working potential can be optimized using the Dialogue software or dedicated MS software (e.g., XCalibur). For maximum conversion rate and wide applicability, the cell is supplied with two electrode materials, Glassy Carbon (GC) and Magic Diamond™ (conductive Diamond, MD). For electrochemical reduction (e.g., S-S bond reduction), a special Semi-Precious Metal electrode (SPM) is available.

Electrifying Reactions Using EC/MS

µ-PrepCell™

Electrochemical reduction

Electrochemical reduction

Reference electrode

Ti inlet block

Spacer

PEEK block with working electrode

Specifications µ-PrepCell™ (High Yield and Conversion Rate)

Cell Type	Three electrode, thin-layer reactor cell (micro preparative work)
Spacers	50 or 100 µm, stainless steel, stackable
Working electrode dimension	12 x 30 mm x 1 mm (WxLxH)
Working electrode area (wetted)	1.9 cm^2
Cell volume	11 µL (with 50 µm spacer)
Working electrodes	Glassy Carbon (GC) , Magic Diamond (MD), Semi-Precious Metal (SPM)
Reference electrode	HyREF (Pd/H2 electrode)
Auxiliary electrode	Titanium
Wetted materials	PEEK, Titanium, silicone rubber, Glassy Carbon or conductive Diamond (WE).
Flow rate	Typically 20 – 100 µL/min
Max. pressure	25 bar (GC electrode) , 50 bar (with MD or SPM electrode)
Fluidic connections	1/16" o.d. PEEK tubing, with 10-32 PEEK fingertight connections
Electric connections	Cell cable for use with ROXY Potentiostat
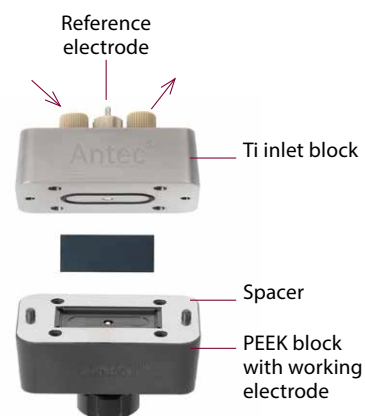
Part no	Description
204.4300	µ-PrepCell kit consisting of: µ-PrepCell including mounting brace, spacers, reference electrode (HyRef) and working electrodes: Glassy Carbon (GC), Magic Diamond (MD), each 1 x. **Not included** special reduction electrode (SPM), part no 204.5010, see below for ordering information

	Spare Parts
204.0501	O-ring inlet block, Silicone
204.0503	O-ring REF electrode, Silicone
204.2217	Spacer 50 µm
204.2218	Spacer 100 µm
204.5007	Glassy Carbon (GC) working electrode
204.5010	Semi-Precious Metal (SPM) reduction electrode
204.5050	Magic Diamond (MD) working electrode

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