

USER INSTRUCTIONS FOR THE μ -PREPCELL2.0, HIGH PRESSURE

This document does not replace doc 204.0010A μ -PrepCell 2.0 manual, but contains important additional information, specific for the μ -PrepCell 2.0 HP version. The information (⚠) below warns about a hazard. It calls attention to a procedure or practice which, if not adhered to, may result in injury, improper operation or damage of the product. Only proceed in case these conditions are fully understood and met. For an explanation of all parts of the cell see the exploded view below. The μ -PrepCell 2.0 HP (p/n 204.4314) is factory pre-mounted with a new TiBlue electrode and ready for use.



Before using the cell read this instruction carefully. Do not loosen or remove the HyREF reference electrode (marked in red) of the μ -PrepCell 2.0 High Pressure, it is fixed at the factory with a pre-defined force. This might lead to leakage or erratic operation of the cell at high pressure.



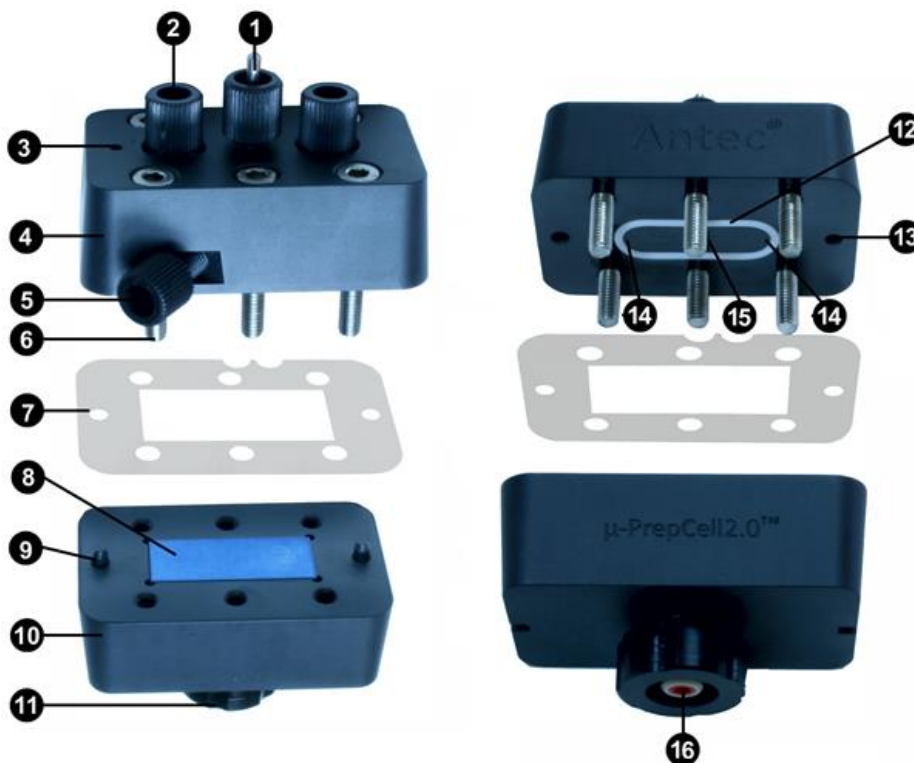
The cell should preferably be operated in the ROXY potentiostat oven compartment or HDX manager using the supplied cell clamp with the door of the instrument closed. Use the supplied torque driver (preset to 0.9 N.m) shown below with the appropriate adapter to close the cell bolts and the VHP PK inlet/outlet fittings. Only use the supplied VHP PK fittings to mount tubing.



Do not use a stainless steel spacer stack of less than 150 μ m (1x 100 μ m + 1x 50 μ m), this might to blockage / obstructed flow through the cell. Exchange the Teflon O-ring (ref 12, exploded view) each time the cell is opened.

EXPLODED VIEW

- 1** HyREF reference electrode
- 2** inlet/outlet fitting (VHP PK)
- 3** AUX connection
- 4** Inlet block (CPEEK)
- 5** Purge plug
- 6** M4 mounting bolts (6x)
- 7** Metal spacer (50 or 100 μ m)
- 8** Working electrode (TiBlue)
- 9** Position pins (spacer)
- 10** Working electrode block (PEEK)
- 11** WE contact nut (POM)
- 12** O-ring (Teflon)
- 13** Positioning pin hole
- 14** Inlet/outlet ports
- 15** Reference electrode port
- 16** WE electrode contact

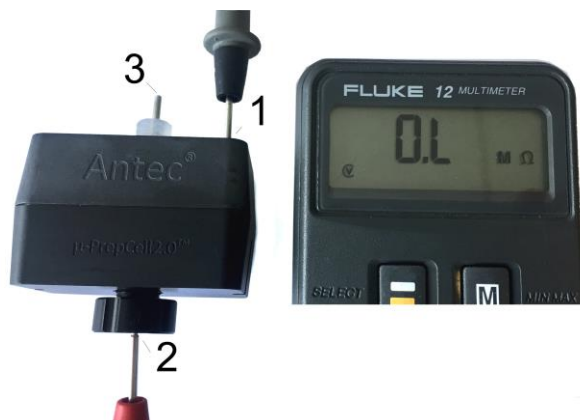


ASSEMBLING & PRIMING

The cell is delivered ready to use. In case of first time use, skip the first section regarding the cleaning & assembling of the cell and continue with the priming steps.

Prior to assembling, make sure to clean the parts (inlet block, WE block, working electrode and O-ring) in IPA/water 50/50 v/v% and dry them thoroughly. Do not touch these parts with bare hands, use for example nitrile gloves.

- Mount the cell completely 'dry' (also under the O-ring!), use a stainless steel spacer stack of at least 150 μm (preferably 200 μm).
- Fix the 6 mounting bolts using the pre-set torque tool (0.9 N.m). Let it rest for 2 minutes and check/retighten the 6 bolts again with the torque tool.
- After assembly check the electrical contact between AUX-REF (1-3), REF-WE (3-2) and AUX-WE (1-2, see figure below) electrode using a ohm meter. There should be no measurable electrical contact (infinite resistance) between the electrodes.



- Connect inlet tubing to the cell inlet port using a VHP PK fitting and fix it with the torque tool.
- Block outlet and open purge port (ref 5 on exploded view).
- Purge reference chamber with mobile phase (to speed up this process one can purge with higher flowrates (>0.1 mL/min).
- Open outlet and close the purge port.
- Purge cell with mobile phase (to speed up this process purge with higher flowrates (>0.1 mL/min)
- If air bubble-free flow is delivered stop the pump flow.
- Connect the outlet tubing to the outlet port using the VHP PK fitting and fix with torque tool.
- Make sure there is a grounding connection between flow cell and the MS ESI interface (see document 210.7026).
- Start pump at designated flow rate for RED/OX experiment (typically 20 – 50 $\mu\text{L}/\text{min}$)
- Start experiment.

Although the pressure rating of the flow cell is max. 350 bar (in combination with a Ti or TiBlue working electrode), it is advised to work at back pressures below 300 bar. When using brittle electrode materials like Glassy Carbon or Boron-Doped Diamond, the max. operating pressure is 25 and 50 bar respectively!