Analytical cells

Descriptions and specifications

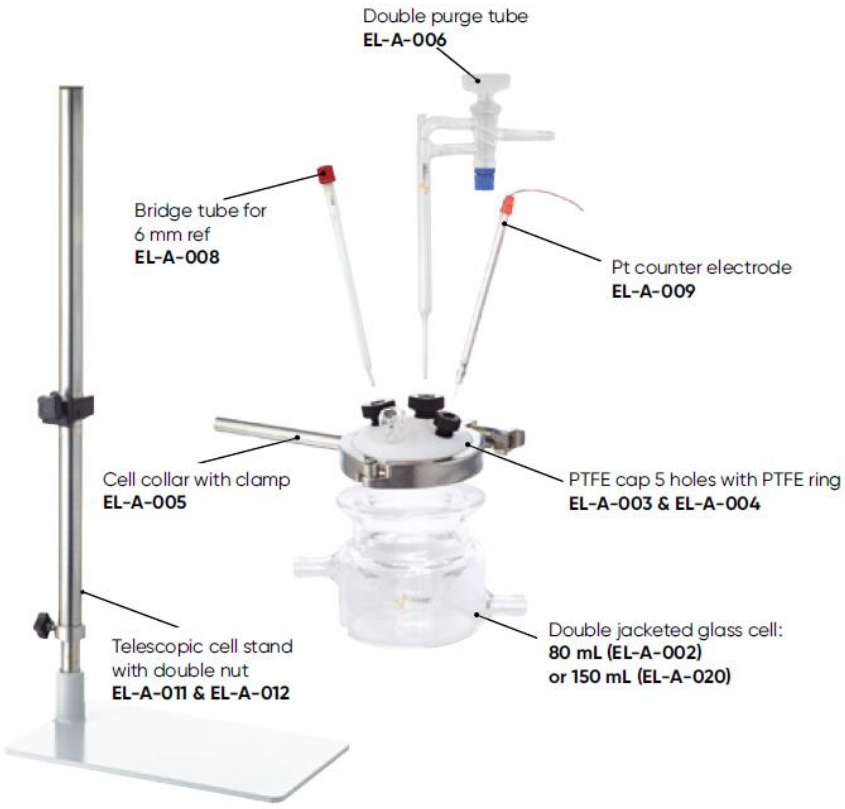
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1. Large volume analytical cells "EL-ELECTRO"

1.1. Description

An analytical cell available in 80 or 150 mL that is particularly well-suited for larger volumes of electrolyte.



Two types of cell kits are available:

- A 80 mL standard analytical cell kit (EL-ELECTRO-80)
- A full analytical cell kit, available in 80 mL or 150 mL, allowing temperature control using a double jacket, and gas purging (EL-ELECTRO-80DJ or EL-ELECTRO-150DJ)

All these cells are compatible with BluRev instruments: the electrode rotators to perform RDE or RRDE experiments, using the specific cap 094-A-CAP.

➢ **Cell size**
- Diameter: 90 mm
- Height (without cap)
  - 80 ml single jacketed: 80 mm
  - 80 ml double jacketed: 90 mm
  - 150 ml double jacketed: 110 mm

- Cap – diameter: 90 mm – height: 20mm

1.2. Kit content and spare parts

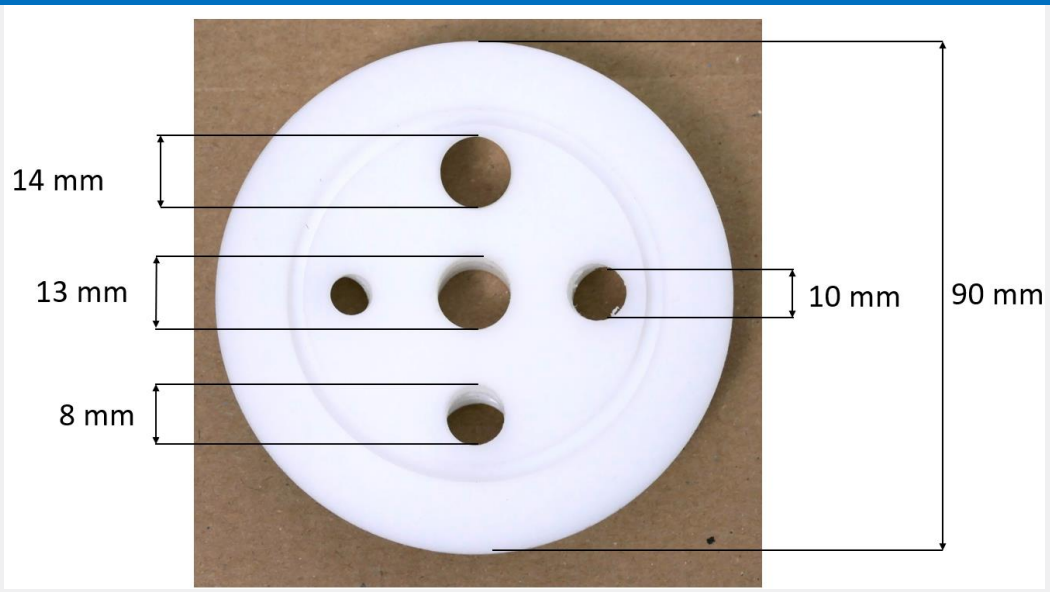
	EL-ELECTRO-80	EL-ELECTRO-80DJ	EL-ELECTRO-150DJ
Glass cell	EL-A-001 (80 mL)	EL-A-002 (80 mL) (double jacketed)	EL-A-020 (150 mL) (double jacketed)
PTFE cap 5 holes		EL-A-003	
PTFE ring, silicon encapsulated, OD 102 mm		EL-A-004	
Cell collar with camp		EL-A-005	
Bridge tube for reference electrode, OD 6 mm		EL-A-008	
Platinum counter electrode		EL-A-009	
Purge tube	EL-A-016	-	
Double purge tube	-	EL-A-006	
Double nut 25 mm and 12 mm diameter	-	EL-A-011	
Telescopic cell stand	-	EL-A-012	

➢ **Options**

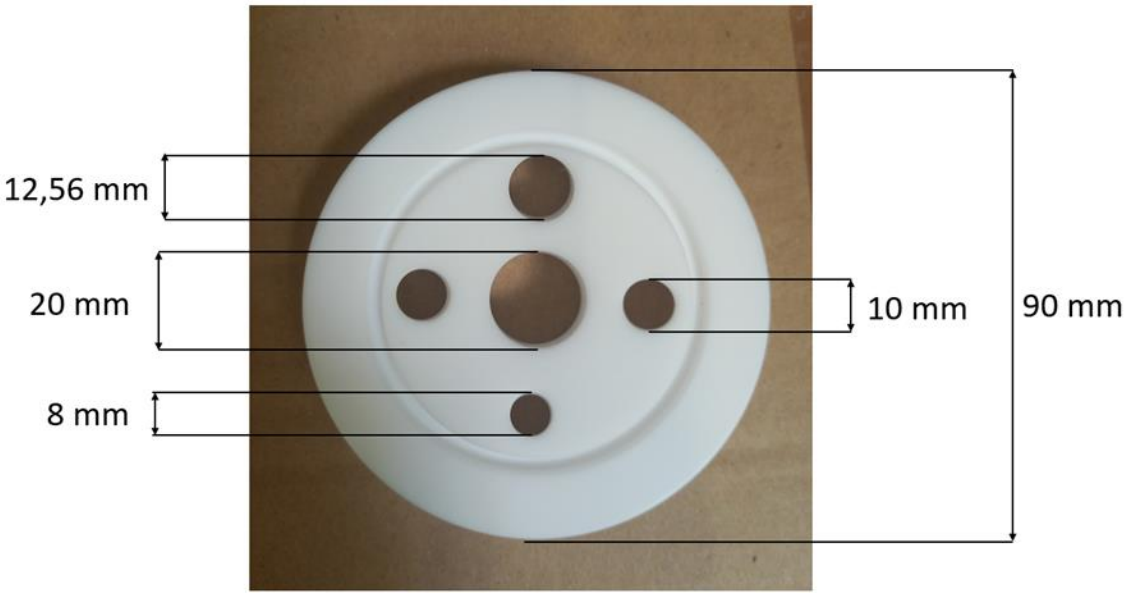
	EL-ELECTRO-80	EL-ELECTRO-80DJ	EL-ELECTRO-150DJ
Electrode bridge extension for electroanalytical cell		EL-A-022	
Bridge tube for reference electrode of OD 8 mm		EL-A-017	
PT100 probe		EL-C-014	
PTFE cap 5 holes compatible with BluRev RDE/RRDE		094-A-CAP	
220 V - Magnetic stirrer & header, without PT100 probe		EL-C-015A	
110 V - Magnetic stirrer & header, without PT100 probe		EL-C-015B	
Aluminum base holder for magnetic stirrer		EL-C-018	
Set of 10 porous 4 mm glass frits (CoralPor) with PTFE heat shrink (200 mm)		092-VYC4	

1.3. Cap specifications

EL-A-003



094-A-CAP



➢ **Setting up**

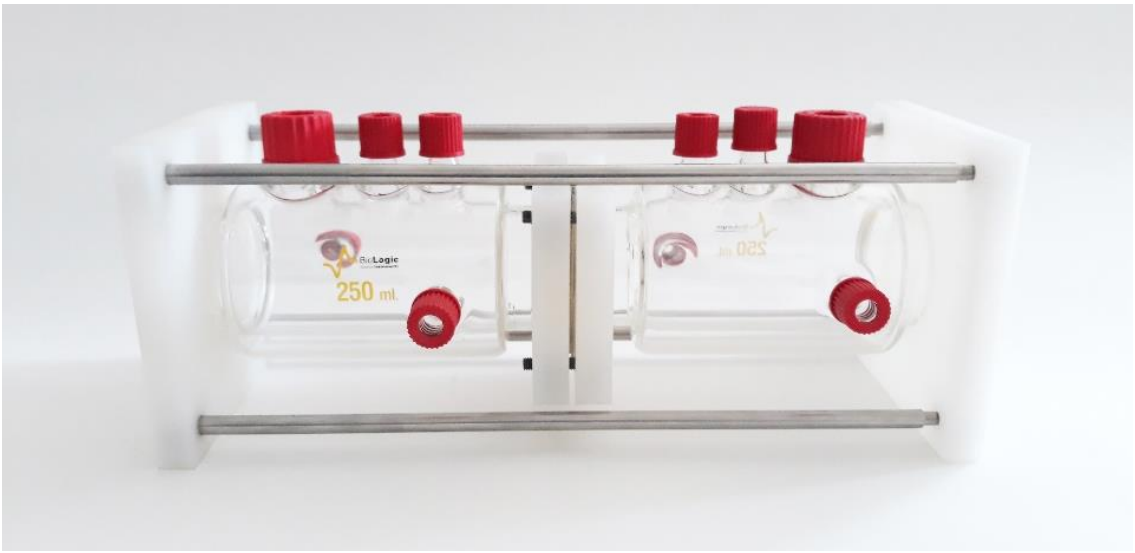


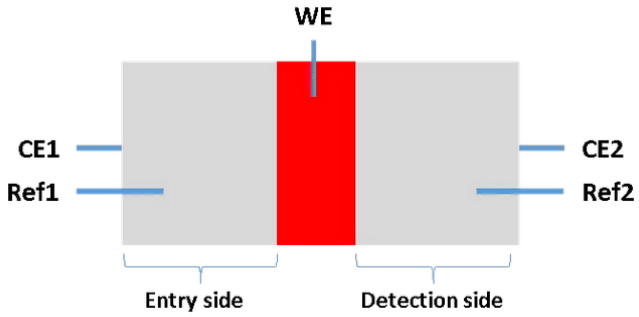



2. Permeation cells “EL-PERM”

2.1. Description

A permeation cell enables the study of the diffusion of a species through a solid. To do so, the studied material is used as a membrane separator and the species concentration evolution is studied on both sides of the membrane. On one side, named the “entry side” (the first cell), a concentration of species is generated while, due to the diffusion of the species inside the material, a concentration change is observed on the other side, named the “detection side” (the second cell).





Schematic of a permeation cell. In red, the studied material is used as a working electrode. In grey, the entry and detection sides are visible.

- **Cell size (HxWxD): 130 x 335 x 130 mm (height with bridge tube: 200 mm)**
- **Maximal sample size (HxW): 55 x 55 mm**
- **Maximal thickness: 6 mm**
- **Active area: 2.93 cm²**

The cell is suitable with 6 mm and 8 mm diameter reference electrodes.

2.2. Kit content and spare parts

	Catalog No.
Permeation Cell kit - without reference electrode	EL-PERM

3. Small volume cells

Each voltammetry cell is designed for a specific application (specific working electrode, volume of solution, oxygen-free condition, etc.). As an example, for voltammetry investigations using standard working electrodes with an outer diameter (OD) of 6 mm, the fixed configuration of the SVC-3 kit is recommended. For applications requiring other working electrode shapes, the SVC-2 is more suitable.

3.1. SVC-2 Voltammetry cell

3.1.1. Description

The SVC-2 cell in microvolume mode was designed for those cases where only a small amount of electroactive compound is available (5 to 10 ml).



- **Cell size with cap and without electrodes – diameter: 32 mm – height: 63 mm**

3.1.2. Kit content and spare parts

		Catalog n°
Products	SVC-2	A-012668

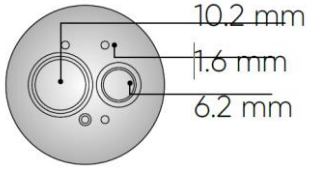
- **Content**

		Catalog n°
Sample vial/mL	20 (7 pieces)	A-001056
Counter electrode (CE)/mm	57	A-002222
PTFE cap		A-012670
Purge tube (ETFE), 100 mm		Included
Additional items	Adapter 10 to 6 mm	Included

➢ **Options**

		Catalog n°
Sample holder/mm	9.0 (2 pieces	A-012177
Cell holder	for 20 mL	A-001209
Purge tube (ETFE)/m	1	A-010537

3.1.3. Cap specification

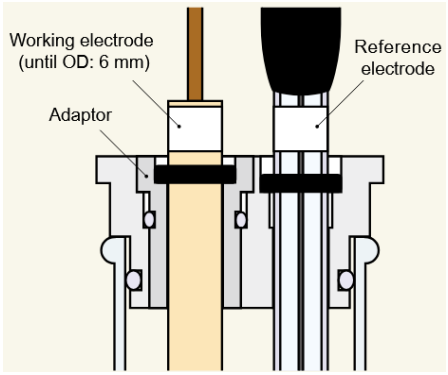


➢ **Cap material: Teflon**

3.1.4. Assembly

➢ **Standard mode**

Set the Teflon cap adaptor to the Teflon cap.
The Teflon cap adaptor is fixed with a silicon O-ring to work in an oxygen-free condition.
If you do not need the oxygen-free condition, then the silicon O-ring can be taken out from the Teflon cap.

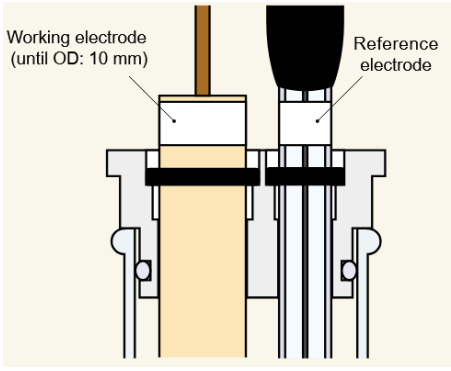


Standard mode fits:

- **Working electrode (until OD: 6.0 mm)**
- **Reference electrode**
- **Platinum counter electrode 5.7 cm**
- **Purging tube**

➢ **10 mm diameter Working Electrode**

Take out the Teflon cap adaptor from the Teflon cap.
Working electrode can be fitted directly to the Teflon cap.
The O-ring will fit perfectly. It permits to have the oxygen-free condition.



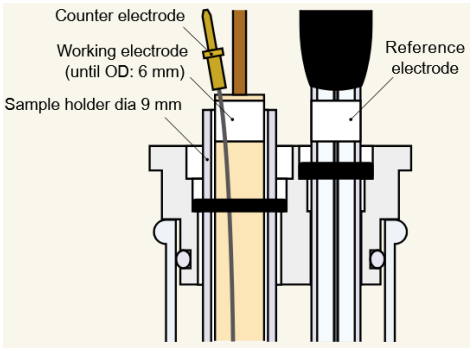
10 mm Working Electrode mode fits:

- Working electrode (OD: 10.0 mm)
- Reference electrode
- Platinum counter electrode 5.7 cm
- Purging tube

➢ Small sample

Take out the Teflon cap adaptor from the Teflon cap and set the Sample holder of the 9.0 mm of the diameter (optional item).
Set the working electrode and counter electrode into the Sample holder.





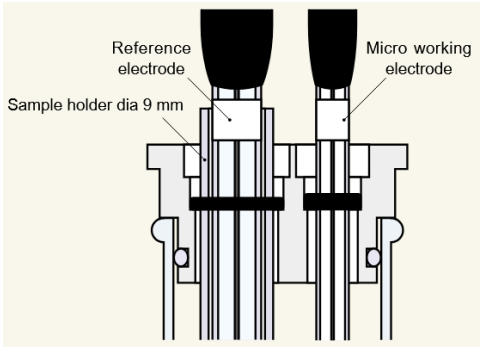
Small sample mode fits:

- Sample holder (OD: 9.0 mm)
  - Working electrode.
  - Counter electrode.
- Reference electrode
- Purging tube

Do not work in oxygen-free condition.

➢ Low temperature

Take out the Teflon cap adaptor and set the Sample holder of the 9.0 mm diameter (optional item).
Set the reference electrode into the sample holder.



Low temperature mode fits:

- Sample holder (OD: 9.0 mm)
  - Reference electrode
- Platinum counter electrode 5.7 cm
- Micro electrode
- Purging tube

3.2. SVC-3 Oxygen-free Voltammetry cell

3.2.1. Description

SVC-3 Voltammetry cell is a standard voltammetry cell. The Teflon cap for SVC-3 voltammetry has three holes for working electrode, reference electrode, counter electrode, and can be used as a sealed cell by pushing the o-ring into hole groove. The microelectrode can also be set in the hole as a working electrode.



The SVC-3 cell is designed for a volume of 5 to 20 mL, only for working electrode with OD of 6 mm.

The SVC-3C Oxygen-free Voltammetry Cell was tested at -40°C by Department of Chemistry, Graduate School of Science, Osaka University.

- **Cell size with cap and without electrodes – diameter: 32 mm – height: 63 mm**

3.2.2. Kit content and spare parts

		Catalog n°
Products	SVC-3	A-012669

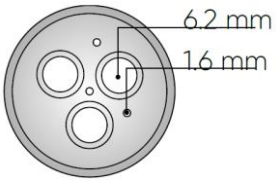
- **Content**

		Catalog n°
Sample vial/mL	20 (7 pieces)	A-001056
Counter electrode (CE)/mm	57	A-002233
PTFE cap		A-012671
Purge tube (ETFE), 100 mm		Included

➢ **Options**

		Catalog n°
Sample holder/mm	6.0 (2 pieces)	A-012176
Cell holder	for 20 mL	A-001209
Purge tube (ETFE)/m	1	A-010537

3.2.3. Cap specification



➢ **Cap material : Teflon**

3.3. SK-2

3.3.1. Description

Please note that a full, purpose-built, analytical kit is also available SK-2 (A-012763) but the reference electrode must be purchased separately.

3.3.2. Kit content and spare parts

This kit includes:

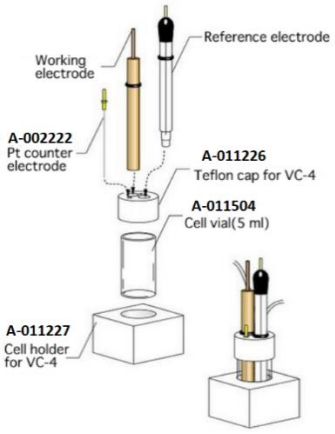
- SVC-3 kit (A-012669)
- PK-3 polishing kit (A-011975)
- one glassy carbon electrode, OD 6.0 mm, ID 3.0 mm (A-002012)
- one platinum electrode, OD 6.0 mm, ID 1.6 mm (A-002013)

3.4. VC-4 Voltammetry cell

3.4.1. Description

The VC-4 is designed for a volume of 1 to 3 mL, only for working electrode with OD of 6 mm.





3.4.2. Kit content and spare parts

		Catalog n°
Products	VC-4	A-011224

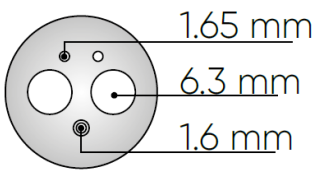
➢ **Content**

		Catalog n°
Sample vial/mL	5 (7 pieces)	A-011504
Counter electrode (CE)/mm	57	A-002222
PTFE cap		A-011226
Purge tube (ETFE), 100 mm		Included
Additional items	Cell holder	A-011227

➢ **Options**

		Catalog n°
Purge tube (ETFE)/m	1	A-010537

3.4.3. Cap specification



➢ **Cap material: Teflon**

3.5. Bulk electrolysis cell

3.5.1. Description

Bulk electrolysis cell is designed for a volume of 100 mL. This cell has been developed in order to perform a complete electrolysis. The carbon working electrode is a reticulated form that provides with sufficient surface area to gain the rate in electrolysis. The Teflon cap is designed for the perfectly fit of the O-ring, which makes possible the measurement in oxygen free condition.



- **Cell size with cap and without electrodes – diameter: 66 mm – height: 80 mm**

3.5.2. Kit content and spare parts

		Catalog n°
Products	Bulk electrolysis cell	A-001197

- **Content**

		Catalog n°
Sample vial/mL	100 (1 piece)	A-012632
Counter electrode (CE)/mm	230	A-002234
PTFE cap		A-011226
Purge tube (ETFE), 100 mm		A-012551
Additional items	Porous carbon electrode	A-010530
	Lid for CE	A-001198
	Chamber for CE	A-001196
	O-ring	A-001236
	Port plug	A-009131
	Stirrer bar	A-000178

- **Options**

		Catalog n°
Purge tube (ETFE)/m	1	A-010537