

ElectroReact

Instruction Manual



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PLEASE READ THESE INSTRUCTIONS PRIOR TO OPERATING YOUR UNIT.

IF THERE IS AN ISSUE WITH YOUR PRODUCT, PLEASE CONTACT YOUR SUPPLIER.

PLEASE DO NOT RETURN ANY GOODS WITHOUT PRIOR AGREEMENT.

INTRODUCTION

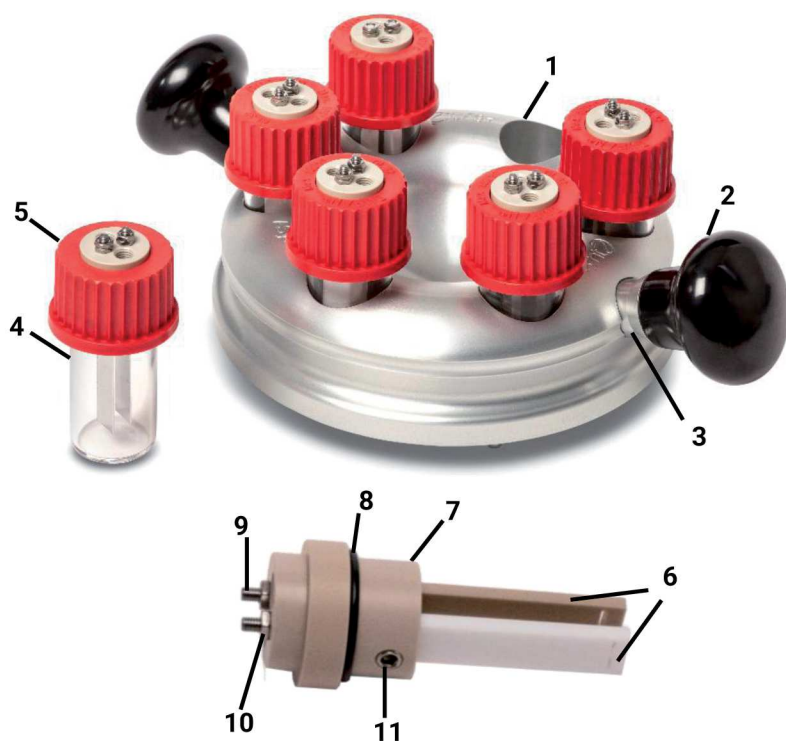
The ElectroReact electrochemistry platform is a flexible system for carrying out up to six electrochemical reactions on a single hotplate stirrer. Each vial can be fitted with two electrodes using a simple clamping system, and has a gas tight seal, enabling users to connect reactions up to Schlenk lines to perform chemistry under inert conditions.

The ElectroReact platform includes a chemically resistant anodised aluminium base plate for equal and reproducible stirring and heating of samples that can hold a standard hotplate thermocouple for hotplate-controlled heating. Ports on each vial allow for additions and reaction sampling.

Compatible with common equipment, the ElectroReact is available with DC power supply and accompanying wires of varying types to suit the user's needs.



COMPONENTS



1. Holding Plate
2. Safety Handle
3. Handle Spacer
4. Glass Vial
5. Vial Lid
6. *Electrode Carrier
7. Lid Insert
8. Lid O-Ring
9. Electrode Holder
10. Nut
11. Grub Screw

Recommended Tools:

- Hex Key 2.5 mm
- *Tube Cutter
- *Nut Spinner
- *Flat-nose Pliers

*Available separately

TECHNICAL SPECIFICATIONS

Temperature range: Ambient – 100 °C

SAFETY WARNINGS

GENERAL WARNINGS

Only trained personnel should be allowed to use the ElectroReact electrochemistry platform, and they must have full knowledge of the equipment, its capabilities, and of the process likely to be carried out with the equipment.

Any specific warnings and methods of operation are to be drawn up and made available to all users.

The appropriate PPE must always be used when handling the ElectroReact platform.

It is the user's responsibility to ensure that they follow in house regulations regarding training and PPE.

HOT SURFACE WARNINGS

Do not touch the ElectroReact holding plate whilst hot. The ElectroReact holding plate will retain high temperatures for some time after use.

Ensure that the electrical cables do not touch any part of the ElectroReact that will reach high/low temperatures.

ELECTRICAL WARNINGS

Keep any electrical components away from water sources. Do not use if wet. Isolate at the socket, switch it off, and only use once an authorised person has inspected the electrical components.

Keep away from flammable substances. Avoid non-compatible reactants and products.

KEY CONSIDERATIONS

1. Depending on the size of your hotplate, screw the feet into the appropriate holes on the underside of the ElectroReact holding plate.
 - For circular hotplates with a diameter of 145 mm, attach 3 feet to the outer holes.
 - For circular hotplates with a diameter of 135 mm, attach 3 feet to the inner holes.
 - For square or irregularly sized hotplates, do not attach any feet.
2. Do not allow solutions to come into contact with any electrical connections.
3. The electrodes must be submerged in solution to a depth of 1cm.
4. If carrying out additions or sampling mid reaction, attach a syringe/syringe pump/peristaltic pump via a Luer fitting and tubing. For sampling solutions, we recommend the use of 1/16" tubing. 1/8" tubing is recommended for connecting to a Schlenk line or for sampling the reactor headspace.
5. Each vial can carry out reactions under inert atmosphere by connecting a suitable supply of inert gas via the ports on top of the reactor.

ASSEMBLY

HEATING PLATE ASSEMBLY & USAGE

1. Place the handle spacers (3) onto the threads of the safety handles (2).
2. Screw the safety handles (2) into the holes on either side of the holding plate (1).
3. Insert a 3mm PT100 into the 3.5 mm hole for temperature monitoring and control.



ATTACHING ELECTRODES

1. If the ElectroReact is attached to a power supply, first switch the power supply off and un-plug it.
2. Unscrew the vial lid (5) and remove the lid insert (7).
3. Loosen, but do not remove, the grub screws (11) on either side of the lid insert (7) with a 2.5 mm hex key. Place the lid O-ring (8) on the bottom section of the lid insert (7) flush against the protruding edge.
5. Insert an electrode into the bottom of the lid insert (7) and re-tighten the grub screw (11) to secure it against the electrode holder (9). Repeat this for the other electrode.
6. Place the lid insert (7) into the glass vial (4), ensuring that the lid O-ring (8) forms a seal, and screw the vial lid (5) onto the glass vial (4).

To use foil or wire, an electrode carrier (6) (available separately) will be required).

Recommended Tools: 2.5 mm Hex Key

To attach foil electrodes to an electrode carrier (6), thread the foil through the hole at the end of the electrode carrier (6) and loop over the end. Repeat this at the other end of the electrode carrier (6). This requires a strip of foil approximately 80 mm by 5 mm.



ATTACHING WIRES

1. If the ElectroReact is attached to a power supply, first switch the power supply off and un-plug it.
2. Do not remove the bottom nut (10) from each electrode holder (9) as these secure the electrode holders (9) in place, ensuring a consistent distance is maintained between electrodes. If loosened, retighten the nut (10) whilst holding the electrode holders (9) flush against the lid insert (7) using flat-nose pliers. The flat sides of the electrode holders (9) should be facing out, and the bottom should be slightly recessed from the bottom of the lid insert (7).
2. To attach ring hook wires, use a nut spinner to remove a nut (10) from the threaded electrode holder (9). Then place the wire over thread and use the nut (10) to secure it in position.
3. To attach alligator clips, clamp them onto the threaded end of the electrode holders (9).

Recommended Tools: Nut Spinner, Flat-nose Pliers

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