supertek®	**INSTRUCTION MANUAL** **Daniel Cell (PH50080)**	Document No.: MN/PH50080 Original Date: 09-09-25 Revision No.: 0 Revision Date:

1) What it is

A classic galvanic cell that shows how chemical energy can produce electricity.

***Chemicals are not supplied.**

2) What's in the box

- **Copper outer vessel** with side terminal and perforated shelf
- **Porous pot** (unglazed ceramic)
- **Zinc rod** with top terminal and support

3) You will also need (not included)

- Two prepared electrolyte solutions supplied by your teacher/lab (labelled **Solution A** for the **outer copper vessel** and **Solution B** for the **inner porous pot**)
- Distilled water for rinsing
- Connecting leads, and a 0–2 V voltmeter or a small demo load (e.g., lamp with **≥100 Ω** series resistor)

If your policy allows naming: Solution A is typically **copper sulfate**, Solution B is **zinc sulfate**. Otherwise, refer only to **A (outer)** and **B (inner)**.

4) Safety

- Wear **gloves and safety glasses**.
- Do not taste, touch, or spill solutions.
- Do not short-circuit the cell.
- Dispose of solutions through your lab's **approved chemical-waste** procedure.

5) Before first use

- Rinse all parts with water.
- **Pre-soak the porous pot** in clean water for **10–15 min** to wet the pores; shake off excess.

6) Assembly & filling

1. Place the **copper vessel** on a stable surface; fit the perforated shelf if supplied loose.
2. Fill the **outer copper vessel** with **Solution A** to about **2–3 cm below the rim**.
3. Place the **porous pot** inside the copper vessel, centered and upright.
4. Fill the **porous pot** with **Solution B** to about **2–3 cm below the rim**.
5. Insert the **zinc rod** into the porous pot and tighten the terminal.

Polarity: Copper vessel terminal = **+ (positive)**; Zinc rod terminal = **– (negative)**.
Tip: Keep the liquid levels in the inner and outer compartments about the same height.

7) Operation

- Measure the voltage by connecting a voltmeter (**+ to copper**, **– to zinc**).
- To power a small load, use a **series resistor** to limit current and keep the demonstration stable.

8) After use

1. Disconnect leads and lift out the zinc rod and porous pot to drain.
2. Empty solutions into your lab's **waste container**.
3. Rinse all parts with water and dry completely.
4. Store **unassembled and dry**.