ZETASIZER ULTRA_Malvern

Start the system
1. Switch on the energy and turn on the compuiter and the screen.
2. Power on the device (back side of the instrument) and start **ZS EXPLORER**.
    2.1. Close the lid and switch on power at the power socket. Then turn on the power and switch on the rear of the unit. The status indicator will show steady amber.
    2.2. Double-click the **ZS EXPLORER** Software icon on the desktop.
    2.3. The initialization routine will begin. When the status indicator shows steady green, the instrument has completed the initialization procedure.

Important Note:
Allow the Zetasizer to stabilize thermally for 30 minutes before use. Leave the instrument on if there will be another user in the near term maximum next two days. If the equipment is not used in this term, switch it off.
<mark>Caution:</mark> After the ZetaSizer is powered OFF. You Must wait at least 5 minutes before turning it back ON again.

Measurement.
1. Fill the cuvette or capillary cell with your specimen dissolved in liquid form using a syringe or pipette – try to avoid bubbles. For a particle size measurement, tilt the cuvette and allow it to fill slowly. The sample depth should be between 10 mm to 15 mm (check by cuvette fill level advice, Fig. 2 - 4), and close the cuvette by securely pushing the lid onto the cuvette. Don´t forget to use a thermal contact plate holder for the Zeta potential measurement. Figure 1 illustrates capillary filling (the measurement of zeta potential) and cuvette (dispersion of particles).
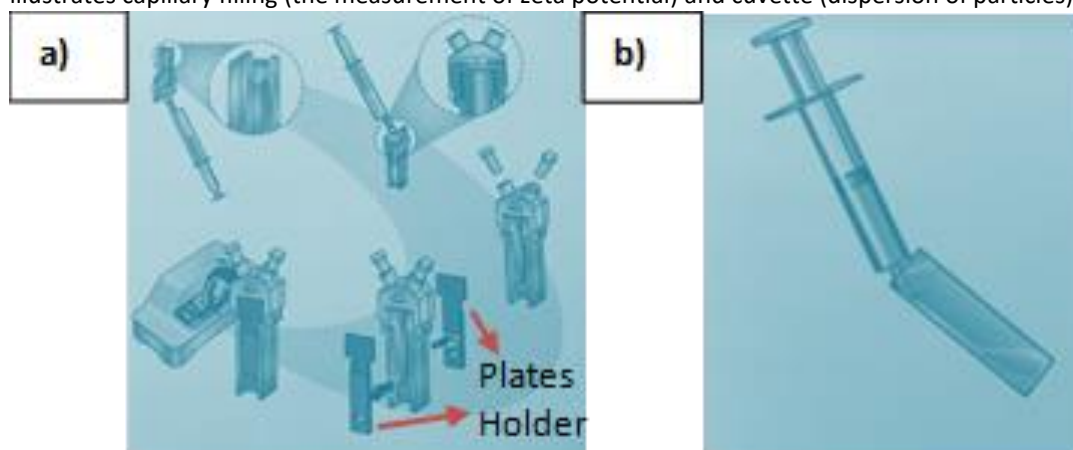
**Figure 1.**   **a)** Filling a folded Capillary cell   **b)** Filling the cuvette.

2. Load the cell into the instrument by pressing the cell access bottom to open the cell chamber lid, and insert the cell. Make sure that the triangle face toward the front of the instrument. Close the cell chamber lid after insertion. (See Figure 2).

3. Set up a measurement. By creating a **new method**/**size** or **Zeta, Particle Concentration, and titration,** specify the individual **step** or **group** settings.

4. Click measure and give your sample an appropriate name. Then select the cell type from the drop-down menu and select the proper material and dispersant for your sample.

5. Create a new project to save measurement results or select an existing project. Build the method by adding steps from the side panel. Define the required settings in the properties area.

6. You can reorder your steps by dragging them up or down as required. Furthermore, you can specify to repeat as many times as needed. Set the number of repeats by clicking on the repeat icon on the step.

7. Run the method by clicking **Start method** at the top of the window. The software will show the measurement progress in real-time. You can quit the measurement by clicking one of the red **Stop** buttons. It is necessary to confirm the STOP.

8. To set up a new measurement while another runs, click the button **+** at the top of the window. When the method is complete, it is shown under the *complete tap* in the *method list*.

9. Analyze your results by selecting the **Analyze** tap from the top menu, selecting a measurement from the record selector on the left, and choosing the Summary, Size, Zeta, Particle Concentration, Titration, or Costume workspace.

Turn off the system and cleaning of cells and accessories.
1. To turn it off, close the program **SZ EXPLORER.**
2. Revise if the equipment will not be used in two days. If not, switch it off.
3. Turn off the power and switch off the rear of the unit.
4. Clean the cuvettes/capillary cells several times by flushing with ethanol or DI water. Let it dry and put it back into the box.
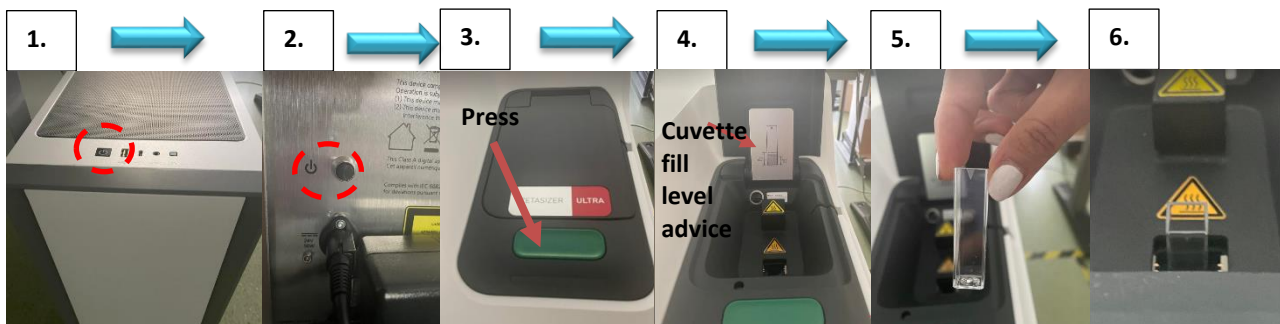
Figure 2. Turning on the device and loading the cell into the instrument.