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Supplementary Material

THE INTERNATIONAL SYMPOSIUM ON WETTABILITY AND POROUS MEDIA – PAST, PRESENT, AND THE FUTURE

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1. BUILD YOUR OWN RESERVOIR MODEL

Materials:

- **Glass jars:** 240ml or larger (number depends on participants)
- **Hydrogel beads:** Available in packets of 10,000 (commonly used for water vases or tactile exercises)
- **Large container:** For hydrating the gel beads
- **Dyed oil:** See recipe below
- **Tap water**
- **Latex gloves**

Dyed Oil Recipe:

- **Red oil dye powder** (e.g., Sigma-Aldrich No. O0625)
- **Light mineral oil**

Instructions:

Dissolve 0.5 grams of red dye powder in 4 liters of light mineral oil. Use a magnetic stirrer for thorough mixing. Strain any undissolved particulates if necessary. We used red dye as it provides a strong contrast against the clear water, however other colors are possible.

Preparation:

1. **Hydrate the hydrogel beads:**
   Place the beads in a large container filled with tap water. Let them soak for at least 2 hours until they expand to their maximum size, over 100 times their original volume.

2. **Prepare the dyed oil:**
   Mix the dye and oil according to the recipe. Strain to remove undissolved particles if needed.

3. **Pack the jars with hydrogels:**
   After soaking, strain excess water from the hydrogels. Using latex gloves*, tightly pack the jars with the expanded beads, leaving minimal air space.

   *Do not touch the hydrogels with your bare hands as this can change their wettability.

4. **Add water to the jars:**
   Fill the jars with water, leaving 7-10mm of space at the top. The hydrogels will become invisible in water due to their matching refractive index. Secure the lids tightly.

Event Procedure:

1. **Prepare the jars:**
   Follow the above preparation steps to prepare the required number of jars.

2. **Participant activity:**
   Participants open the jars and fill the remaining pore space with the red-dyed oil. Then, they tightly close the lids.

3. **Observation:**
   Flip the jars and observe the oil migration. Refer to **Figure 4** in the main manuscript for expected results.