

SOP: SP076

Preparation of Buffers & Media

Materials and Reagents:

1. Graduated cylinder
2. Stir bar and stir plate
3. MilliQ Water
4. Recipe
5. pH meter

Protocol: (note 1)

1. _____ Find an appropriately sized graduated cylinder (note 2).
2. _____ Add MilliQ water to ~80% of the total volume of the recipe (note 3).
3. _____ Add a stir bar to the cylinder, place on a stir plate, and start stirring.
4. _____ Measure the chemicals indicated on the recipe and gradually add them to the water. Be sure to clean balances after use.
5. _____ Stir until dry chemicals are completely dissolved and the solution is thoroughly mixed (note 4).
6. _____ Measure the pH (SOP: SP023) and adjust as necessary using the appropriate acid or base.
7. _____ Add water to the final volume, then check that the pH is still stable.
8. _____ Transfer to a storage container (note 5).
9. _____ Label with the buffer/media name, date made, and your initials.

Notes:

1. Gloves should be worn at all times while handling chemicals. Be aware of any additional protective equipment that may be required for specific chemicals (this may include a mask, lab coat, goggles, or use of the chemical fume hood).
2. Volume markings on bottles are approximate and should not be used for measuring. If using a plastic cylinder, ensure that the chemicals being used are compatible.
3. Starting with water in the cylinder will ensure that any hazardous chemicals are as dilute as possible during preparation, and will also help prevent dry chemicals from accumulating at the bottom of the cylinder. There should be enough space left in the cylinder for all necessary chemicals (assuming 1 gram of most dry chemicals will take up approximately 1 ml of volume), as well as any acid or base needed to adjust pH.
4. Some chemicals (EDTA in particular) will not go into solution until the pH is adjusted. These exceptions should be noted in the recipe.
5. Some buffers/media require sterilization before storing. Ensure that the sterilization method (filtration or autoclaving) is appropriate for the chemical composition of your solution.