

Protocol for Preparing 1M MgSO₄ (Magnesium Sulfate) Stock Solution

Materials:

- Magnesium sulfate heptahydrate (MgSO₄·7H₂O) powder
 - Deionized water (DI water)
 - 1 L volumetric flask or beaker
 - Scale for weighing
 - Stirring rod or magnetic stirrer
 - 0.22 μm sterile syringe filter (optional for sterilization)
 - Sterile storage container (e.g., 50 mL conical tubes)
-

Steps:

1. **Weigh the magnesium sulfate:**
 - Measure **120.37 g** of **MgSO₄·7H₂O** using a clean, calibrated scale. This will make 1 liter of a 1M solution.
 2. **Dissolve in deionized water:**
 - Add the MgSO₄·7H₂O to a beaker or volumetric flask containing about 800 mL of deionized water.
 - Stir the solution with a stirring rod or magnetic stirrer until the magnesium sulfate is completely dissolved.
 3. **Adjust to final volume:**
 - Once the magnesium sulfate is fully dissolved, add deionized water to bring the final volume to **1 liter**.
 4. **Sterilize the solution (optional but recommended):**
 - If the solution needs to be sterile, filter it through a **0.22 μm sterile filter** into a sterile container.
 5. **Aliquot and store:**
 - Transfer the solution into sterile containers or aliquots (e.g., 50 mL conical tubes).
 - Label with "1M MgSO₄," the date, and your initials.
 - Store at **room temperature** or at **4°C**.
-

Note:

- **1M MgSO₄** solution is commonly used as a supplement in bacterial growth media, such as M9 medium, to provide magnesium ions necessary for various cellular processes.