

Answer on Question #79730, Chemistry /General Chemistry

A laboratory experiment requires 6.2 L of a 0.025 M solution of phosphoric acid (H₃PO₄), but the only available solution is a 12.0 M stock solution. How could you prepare the solution needed for the lab experiment?

Solution

Find the amount of acid needed for the solution :

$$v(\text{H}_3\text{PO}_4) = 6.2 \times 0.025 = 0.155 \text{ (mol)}$$

Find the volume of 12.0 M solution containing 0.155 mol of acid :

$$V = \frac{0.155}{12} = 0.013 \text{ (L)} = \mathbf{13 \text{ (ml)}}$$

Answer

To prepare the solution needed, **13 ml** of stock solution should be dissolved to 6.2 L.