

### Answer on Question #59575 – Chemistry– Physical Chemistry

#### Question:

How would you prepare 300.0 millilitres of a 0.250 M  $\text{KH}_2\text{PO}_4$  solution?

#### Answer:

First of all, to prepare a 0.250 m solution of  $\text{KH}_2\text{PO}_4$ , we to know the mass of  $\text{KH}_2\text{PO}_4$ , that should be added to the solvent.

Molar concentration or molarity is defined as amount of solute per unit volume of solution:

$$c = \frac{n}{V} = \frac{m}{M * V}$$

Here, n is the amount of the solute in moles, m is the mass of  $\text{KH}_2\text{PO}_4$ , M is a molar mass of  $\text{KH}_2\text{PO}_4$  ( 136 g/mol), V is the volume of solvent.

$$m = c * M * V = 0.250 * 0.3 * 136 = 10.2 \text{ g}$$

**Answer: 10.2 g of  $\text{KH}_2\text{PO}_4$**  need to be added to form 0.250 M solution.