

Answer on Question #82463, Chemistry / General Chemistry

1. What volume (in mL) of a 0.164M solution of $\text{Ca}(\text{OH})_2$ should be used to neutralize 22.4 mL of a 0.369M solution in H_3PO_4 .

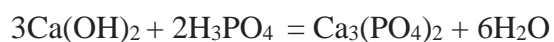
Solution:

$$C_M = \frac{n}{V}$$

$$V(\text{H}_3\text{PO}_4) = 22.4\text{mL} = 0.0224 \text{ L}$$

$$n = C_M \times V$$

$$n(\text{H}_3\text{PO}_4) = 0.0224 \times 0.369 = 0.00826 \text{ mol}$$



$$n(\text{Ca}(\text{OH})_2) : n(\text{H}_3\text{PO}_4) = 3:2 = 1.5 : 1$$

$$n(\text{Ca}(\text{OH})_2) = 1.5 \times 0.00826 \text{ mol} = 0.012 \text{ mol}$$

$$C_M(\text{Ca}(\text{OH})_2) = 0.164 \text{ mol/L}$$

$$\text{On 1L} - 0.164 \text{ mol}$$

$$\text{On XL} - 0.012 \text{ mol}$$

$$X = 0.073\text{L} = 73 \text{ mL}$$

Answer: $V(\text{Ca}(\text{OH})_2) = 73 \text{ mL}$

Answer provided by www.AssignmentExpert.com