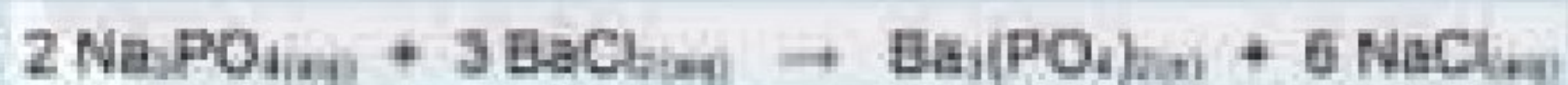


A 1.88 g sample mixture of $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ (molar mass = 244.3 g/mol) and $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ (molar mass = 380.2 g/mol) was dissolved in 250 mL water, and after filtration and drying of the resulting barium phosphate precipitate $\text{Ba}_3(\text{PO}_4)_2$, (molar mass = 601.9 g/mol), weighed 0.15 g. If a drop of barium chloride solution added to the filtrate yielded a precipitate, then the mass % of the excess reactant in the sample mixture is equal to:



84 %

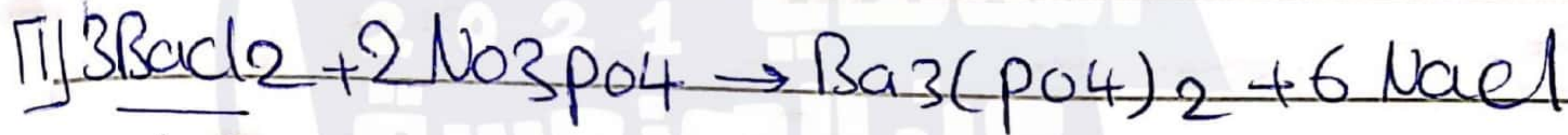
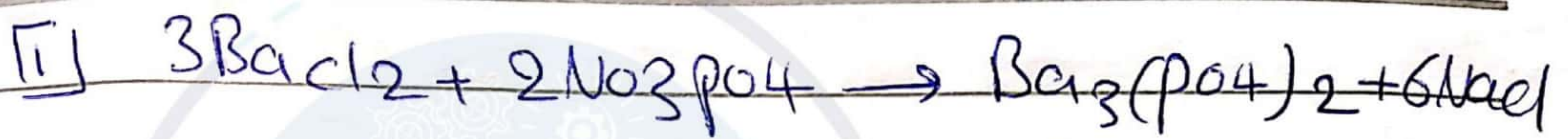
71 %

77 %

90 %

60 %

Clear my choice



L.R

$$\text{mass BaCl}_2 = n \text{Ba}_3(\text{PO}_4)_2 * 3 * 244.3$$

$$= \frac{0.15}{601.9} * 3 * 244.3$$

$$= 0.183\text{g} \rightarrow \text{mass\% L.R} = \frac{0.183}{1.88}$$

$$= 9.7\%$$

$$\rightarrow \text{mass\% excess} = 90\%$$

A 1.88 g sample mixture of $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ (molar mass = 244.3 g/mol) and $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ (molar mass = 380.2 g/mol) was dissolved in 250 mL water, and after filtration and drying of the resulting barium phosphate precipitate $\text{Ba}_3(\text{PO}_4)_2$ (molar mass = 601.9 g/mol), weighed 0.45 g. If a drop of barium chloride solution added to the filtrate yielded a precipitate, then the mass % of the excess reactant in the sample mixture is equal to:



- 90 %
- 71 %
- 60 %
- 84 %
- 77 %

Clear my choice

Next page

$$[2] \text{ mass BaCl}_2 = n \text{ Ba}_3(\text{PO}_4)_2 \times 3 \times 244.3$$

$$= \frac{0.45}{601.9} \times 3 \times 244.3$$

$$= 0.55 \text{ g} \rightarrow \text{mass\% I.R} = \frac{0.55}{1.88}$$

$$= 29\%$$

$$\rightarrow \text{mass\% excess} = 71\%$$

Which one of the following statements is incorrect?

- An overestimate of the excess reactant mass % is obtained on incomplete drying of the precipitate.
- An overestimate of the excess reactant mass % is obtained on loss of part of the precipitate.
- $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ is the excess reactant, if addition of BaCl_2 aqueous solution to the filtrate didn't yield a precipitate.
- $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ is the excess reactant, if addition of Na_3PO_4 aqueous solution to the filtrate didn't yield a precipitate.
- $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ is not the excess reactant, if addition of BaCl_2 aqueous solution to the filtrate didn't yield a precipitate.

Clear my choice

Which of the following statements is not correct concerning the experiment of limiting reactant?

- An underestimate of the limiting reactant mass % is obtained on incomplete drying of the precipitate.
- $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ is not the limiting reactant, if addition of BaCl_2 aqueous solution to the filtrate yields a precipitate.
- $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ is the limiting reactant, if addition of BaCl_2 aqueous solution to the filtrate yields a precipitate.
- An underestimate of the limiting reactant mass % is obtained on loss of part of the precipitate.
- $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ is the limiting reactant, if addition of Na_3PO_4 aqueous solution to the filtrate yields a precipitate.

Clear my choice

Which of the following statements is not correct concerning the experiment of limiting reactant?

- $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ is not the limiting reactant, if addition of Na_3PO_4 aqueous solution to the filtrate yields a precipitate.
- $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ is the limiting reactant, if addition of BaCl_2 aqueous solution to the filtrate yields a precipitate.
- An underestimate of the limiting reactant mass % is obtained on loss of part of the precipitate.
- $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ is not the limiting reactant, if addition of BaCl_2 aqueous solution to the filtrate yields a precipitate.
- An overestimate of the limiting reactant mass % is obtained on incomplete drying of the precipitate.