Molarity Worksheet

W 331

What is the molarity of the following solutions given that:

1) 1.0 moles of potassium fluoride is dissolved to make 0.10 L of solution.

2) 1.0 grams of potassium fluoride is dissolved to make 0.10 L of solution.

3) 1.0 grams of potassium fluoride is dissolved to make 0.10 mL of solution.

4) 952 grams of ammonium carbonate are dissolved to make 1750 mL of solution.

5) 9.82 grams of lead (IV) nitrate are dissolved to make 465 mL of solution.

Everett Community College
Student Support Services Program

Solutions

What is the molarity of the following solutions given that:

1)   1.0 moles of potassium fluoride is dissolved to make 0.10 L of solution.

$$\underline{\textbf{1.0 mole KF}} = \textbf{10. M}$$
$$\textbf{0.10 L soln}$$

2)   1.0 grams of potassium fluoride is dissolved to make 0.10 L of solution.

$$\textbf{1.0 g KF x } \underline{\textbf{1 mole KF}} = \textbf{0.0172 mol KF}$$
$$\textbf{58 g KF}$$

$$\underline{\textbf{0.0172 mol KF}} = \textbf{0.17 M}$$
$$\textbf{0.10 L soln}$$

3)   1.0 grams of potassium fluoride is dissolved to make 0.10 mL of solution.

$$\textbf{1.0 g KF x } \underline{\textbf{1 mole KF}} = \textbf{0.0172 mol KF}$$
$$\textbf{58 g KF}$$

$$\underline{\textbf{0.0172 mol KF}} = \textbf{170 M}$$
$$\textbf{1 x 10}^{-4}\textbf{ L soln}$$

4)   952 grams of ammonium carbonate are dissolved to make 1750 mL of solution.

$$\textbf{952 g (NH}_4\textbf{)}_2\textbf{CO}_3\textbf{ x } \underline{\textbf{1 mole (NH}_4\textbf{)}_2\textbf{CO}_3} = \textbf{9.92 mole (NH}_4\textbf{)}_2\textbf{CO}_3$$
$$\textbf{96 g (NH}_4\textbf{)}_2\textbf{CO}_3$$

$$\underline{\textbf{9.92 mole (NH}_4\textbf{)}_2\textbf{CO}_3} = \textbf{5.67 M}$$
$$\textbf{1.75 L soln}$$

5)   9.82 grams of lead (IV) nitrate are dissolved to make 465 mL of solution.

$$\textbf{9.82 g Pb(NO}_3\textbf{)}_4\textbf{ x } \underline{\textbf{1 mole Pb(NO}_3\textbf{)}_4} = \textbf{0.0216 moles Pb(NO}_3\textbf{)}_4$$
$$\textbf{455.2 g Pb(NO}_3\textbf{)}_4$$

$$\underline{\textbf{0.0216 moles Pb(NO}_3\textbf{)}_4} = \textbf{0.0465 M}$$
$$\textbf{0.0465 L soln}$$

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