Chemistry 115 Name Key

Dr. Cary Willard

Quiz 9a (20 points) May 6, 2010

Must show all work to receive credit. Use proper significant figures.

1. (5 points) What is the effect of pressure on the solubility of gases in liquids?

As the pressure of a gas above a liquid increases it solubility increases

Of solids in liquids?

Pressure has very little effect on the solubility of solids in liquids.

1. (5 points) At a particular temperature, the solubility of Xenon gas in water is 0.00388 g/L at 287 torr. What would the solubility of krypton gas be at 937 torr?

$$S\_{1}= \frac{0.00388 g}{L} P\_{1}=287 torr$$

 $S\_{2}= ? P\_{2}=937 torr$

$$\frac{S\_{1}}{P\_{1}}=\frac{S\_{2}}{P\_{2}} \rightarrow \rightarrow \rightarrow S\_{2}= S\_{1}\left(\frac{P\_{2}}{P\_{1}}\right)=\left(\frac{0.00388 g}{L}\right)\left(\frac{937 torr}{287 torr}\right)=\frac{0.0127 g}{L}$$

1. (5 points) Calculate the mass percent of potassium chlorate in a solution that is prepared by dissolving 64.2 g of KClO3 in 350.0 g of H2O.

$$\% KClO\_{3}=\left(\frac{mass KClO\_{3}}{mass solution}\right)×100\%=\left(\frac{64.2 g KClO\_{3}}{64.2 g KClO\_{3}+350.0 g H\_{2}O}\right)×100\%$$

$$=\left(\frac{64.2g}{414.2g}\right)×100\%=15.5\% KClO\_{3}$$

1. (5 points) Calculate the volume of a 4.36 M solution potassium chromate that will contain 8.35 g of K2CrO4.

$$?L K\_{2}CrO\_{4} soln=8.35 g K\_{2}CrO\_{4}×\frac{1 mol K\_{2}CrO\_{4}}{194.2 g K\_{2}CrO\_{4}}×\frac{1 L K\_{2}CrO\_{4}}{4.36 mol K\_{2}CrO\_{4}}$$

$$=0.00986 L K\_{2}CrO\_{4} soln or 9.86 mL soln$$

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Quiz 9b (20 points) May 6, 2010

Must show all work to receive credit. Use proper significant figures.

1. (5 points) What is the effect of pressure on the solubility of gases in liquids?

As the pressure of a gas above a liquid increases it solubility increases

Of solids in liquids?

Pressure has very little effect on the solubility of solids in liquids.

1. (5 points) At a particular temperature, the solubility of Xenon gas in water is 0.00388 g/L at 287 torr. What would the solubility of krypton gas be at 824 torr?

$$S\_{1}= \frac{0.00388 g}{L} P\_{1}=287 torr$$

 $S\_{2}= ? P\_{2}=824 torr$

$$\frac{S\_{1}}{P\_{1}}=\frac{S\_{2}}{P\_{2}} \rightarrow \rightarrow \rightarrow S\_{2}= S\_{1}\left(\frac{P\_{2}}{P\_{1}}\right)=\left(\frac{0.00388 g}{L}\right)\left(\frac{824 torr}{287 torr}\right)=\frac{0.0111 g}{L}$$

1. (5 points) Calculate the mass percent of potassium chlorate in a solution that is prepared by dissolving 87.4 g of KClO3 in 350.0 g of H2O.

$$\% KClO\_{3}=\left(\frac{mass KClO\_{3}}{mass solution}\right)×100\%=\left(\frac{64.2 g KClO\_{3}}{87.4 g KClO\_{3}+350.0 g H\_{2}O}\right)×100\%$$

$$=\left(\frac{87.4g}{437.4g}\right)×100\%=20.0 \% KClO\_{3}$$

1. (5 points) Calculate the volume of a 4.36 M solution potassium chromate that will contain 6.98 g of K2CrO4.

$$?L K\_{2}CrO\_{4} soln=6.98 g K\_{2}CrO\_{4}×\frac{1 mol K\_{2}CrO\_{4}}{194.2 g K\_{2}CrO\_{4}}×\frac{1 L K\_{2}CrO\_{4}}{4.36 mol K\_{2}CrO\_{4}}$$

$$=0.00824 L K\_{2}CrO\_{4} soln or 8.24 mL soln$$