

name: _____

Read the BASICS. Study or read chem for 15 minutes every day practice.

1. How much NaNO_3 will saturate a 100. mL solution at 20°C ? _____
2. How much NaNO_3 will saturate a 325 mL solution at 20°C ? (show work).

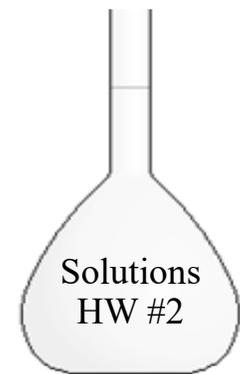
$$20^\circ\text{C} \quad \frac{\text{NaNO}_3}{\text{water}} \quad \frac{\text{grams}}{100 \text{ mL}} = \frac{\text{grams}}{325 \text{ mL}}$$



3. If you cooled a 100 mL saturated $\text{KCl}_{(\text{AQ})}$ from 80°C to 10°C , how many grams of solute precipitates?
4. Once this excess solute precipitates out of solution in question #3, forms a dynamic equilibrium. Define dynamic equilibrium.
4. In solutions chem, there's an expression: Like Dissolves Like. What does that refer to?
5. Which solution contains more solute?
200 mL $\text{HCl}_{(\text{AQ})}$ at 30°C , or 100 mL of $\text{KI}_{(\text{AQ})}$ at 20°C ? Don't guess, do the math.

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1. You mix a 100 mL saturated solution of potassium chloride at 10°C. What is the molarity of this solution?



2. You dissolve 4.48 moles of KCl into 12.00 liters of water. What is the molarity of this solution?
3. You dissolve 7.86 moles of KNO_3 into 21.0 liters of water, what is the molarity of this solution?
4. You put 1.12 grams of perfume into your bathtub to scent the water. Your tub holds a total of 158 liters of water and perfume. How many parts per million of perfume are in this water?
5. A “normal” saline is $\text{NaCl}_{(\text{AQ})}$ solution that you get via an IV line in the hospital if you are dehydrated. There are 4.5 grams NaCl per 500. gram bag of solution. That matches the salt concentration in your body. What’s the molarity of this solution?

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1. You put 50.0 grams KClO_3 into water to create a 475 mL solution at 100.0°C . How many more grams would it take to saturate this solution?



2. A 100 mL saturated $\text{KClO}_{3(\text{AQ})}$ is chilled from 100°C to 80°C . How many grams of $\text{KClO}_{3(\text{S})}$ precipitates out of solution?

3. If you have a stock solution of 2.75 M $\text{Ca}(\text{OH})_{2(\text{AQ})}$ how do you prepare a 1.43 M solution of 550 mL? (show FORUMULA + work, then label the flask)



4. If you have a stock 3.64 M $\text{Mg}(\text{NO}_3)_{2(\text{AQ})}$ how do you prepare a 0.755 M solution of 305 mL? (show FORUMULA + work, label the flask)



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1. How many parts per million of arsenic oxide be present in a water tank of 253,800 liters that contains 1.15 kg of arsenic oxide dissolved?



2. What is the concentration of $O_{2(G)}$ in parts per million, in a solution that contains 0.008 grams of O_2 dissolved into each 1000. grams of $H_2O_{(L)}$? (from the NYS Regents Jan 2008, #38)
3. What is the concentration in parts per million of $CO_{2(AQ)}$ in soda, if the soda contains 0.0035 grams CO_2 per can? Each can of soda contains 355 grams of soda.

4. The 3 colligative properties of water are given in this table. List the correct values for water, then ESTIMATE them for a salty water solution of 2.00 M $Ca(NO_3)_{2(AQ)}$ Round to a whole number value.		
	pure water	4.75 M $Mn(NO_3)_{2(AQ)}$
boiling point in Kelvin		
freezing point in Kelvin		
vapor pressure at room temp		