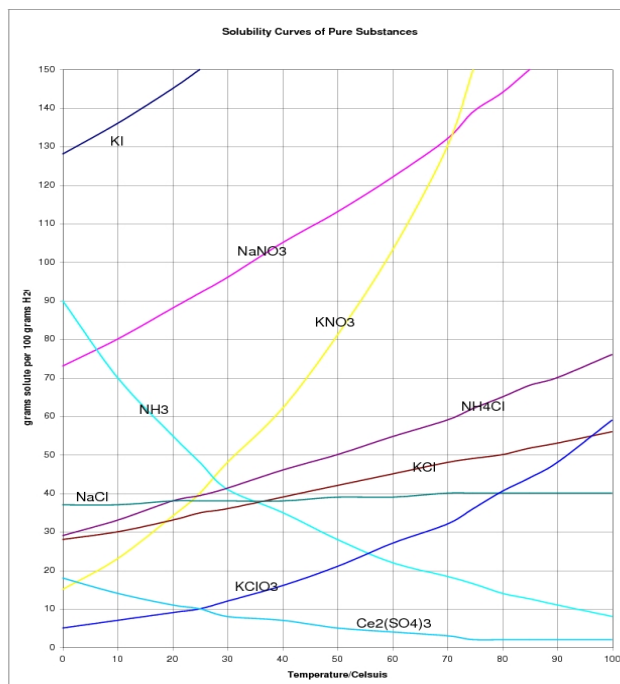


Reading a Solubility Chart

- 1) The curve shows the # of grams of solute in a saturated solution containing 100 mL or 100 g of water at a certain temperature.
- 2) Any amount of solute below the line indicates the solution is unsaturated at a certain temperature
- 3) Any amount of solute above the line in which all of the solute has dissolved shows the solution is supersaturated.
- 4) If the amount of solute is above the line but has not all dissolved, the solution is saturated and the # grams of solute settled on the bottom of the container = total # g in solution – # g of a saturated solution at that temperature. (according to the curve)
- 5) Solutes whose curves move upward w/ increased temperature are typically solids b/c the solubility of solids increases w/ increased temperature.
- 6) Solutes whose curves move downward w/ increased temperature are typically gases b/c the solubility of gases decreases with increased temperature.



Solubility Problems to solve

1. At 10°C, 80 g of NaNO₃ will dissolve in 100 mL (a saturated solution)
2. To find the # grams needed to saturate a solution when the volume is NOT 100 mL use the following strategy to find answer:

Start w/ known vol. x Solubility/100mL at set temp. = amount of Solute needed to saturate

$$\text{Ex. } 60 \text{ mL H}_2\text{O} \times \frac{80 \text{ g NaNO}_3}{100 \text{ mL H}_2\text{O}} = 48 \text{ g NaNO}_3 \text{ needed to saturate solution}$$

or if the chart is in units of 100 g of H₂O use the density of water conversion 1mL H₂O= 1 g H₂O

$$\text{Ex. } 60 \text{ mL H}_2\text{O} \times \frac{1 \text{ g H}_2\text{O}}{1 \text{ mL H}_2\text{O}} \times \frac{80 \text{ g NaNO}_3}{100 \text{ g H}_2\text{O}} = 48 \text{ g NaNO}_3$$