

Solubility (S) - Example of Work

How many grams of Ammonium chloride (NH_4Cl) do I need to add to $325\text{g H}_2\text{O}$ to make a saturated solution at 45°C ?

$$S = \frac{\text{g solute}}{100\text{g H}_2\text{O}} \Rightarrow \text{g NH}_4\text{Cl} = (\text{g H}_2\text{O})(S)$$

From Solubility Table

$$\text{at } 45^\circ\text{C}, S = \frac{48\text{g NH}_4\text{Cl}}{100\text{g H}_2\text{O}}$$

$325\text{g H}_2\text{O}$

$$\text{g NH}_4\text{Cl} = (325\text{g H}_2\text{O}) \left(\frac{48\text{g NH}_4\text{Cl}}{100\text{g H}_2\text{O}} \right)$$

$$= 156.0\text{g NH}_4\text{Cl}$$

$$= \boxed{156\text{g NH}_4\text{Cl}}$$