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Crash Course Chemistry #27: Solutions

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1. Air is a _____, a mixture where particles of a solute are dissolved in a solvent.
2. In air, the solvent is _____ because it is the component present in the greatest amount.
3. The three factors that affect solubility are molecular structure, pressure, and _____.
4. The amount of solute that can dissolve in a solvent is referred to as its _____.
5. The _____ of a solution is the number of moles of solute per liter of solution.
6. The _____ of a solution is the number of moles of solute per kilogram of solvent.
7. A solution's _____ is calculated by dividing the mass of the solute by the total mass of the solution and multiplying by 100.
8. For a substance to dissolve, it needs to interact favorably with the solvent — a process that depends on _____.
9. Polar solvents tend to dissolve _____ solutes.
10. Tetrodotoxin dissolves easily in water because it is highly _____.
11. Tetrodotoxin disrupts nerve function by binding to _____ channels in nerve cells.
12. The solubility of a gas in a liquid increases when the _____ of the gas above the liquid is increased.
13. According to _____ Law, the concentration of a dissolved gas equals its partial pressure times a constant.
14. The solubility of solid solutes in liquids generally _____ as temperature increases.
15. The solubility of gases in liquids generally _____ as temperature increases.

Crash Course Chemistry #27: Solutions KEY

1. Air is a **solution**, a mixture where particles of a solute are dissolved in a solvent.
2. In air, the solvent is **nitrogen** because it is the component present in the greatest amount.
3. The three factors that affect solubility are molecular structure, pressure, and **temperature**.
4. The amount of solute that can dissolve in a solvent is referred to as its **solubility**.
5. The **molarity** of a solution is the number of moles of solute per liter of solution.
6. The **molality** of a solution is the number of moles of solute per kilogram of solvent.
7. A solution's **mass percent** is calculated by dividing the mass of the solute by the total mass of the solution and multiplying by 100.
8. For a substance to dissolve, it needs to interact favorably with the solvent — a process that depends on **polarity**.
9. Polar solvents tend to dissolve **polar** solutes.
10. Tetrodotoxin dissolves easily in water because it is highly **polar**.
11. Tetrodotoxin disrupts nerve function by binding to **sodium** channels in nerve cells.
12. The solubility of a gas in a liquid increases when the **partial pressure** of the gas above the liquid is increased.
13. According to **Henry's Law**, the concentration of a dissolved gas equals its partial pressure times a constant.
14. The solubility of solid solutes in liquids generally **increases** as temperature increases.
15. The solubility of gases in liquids generally **decreases** as temperature increases.

15 Questions

Answer Key Included

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