

SOLUBILITY AND PERCENT CONCENTRATION

1. A 500 g solution is prepared by using 50 g of sugar. What is the percent concentration of sugar by mass in the solution?
2. A solution is prepared by mixing 240 g of water and 60 g of sugar. What is the percent concentration of sugar by mass in solution?
3. How many grams of NaCl are there in 300 g of salty water that is 20 % NaCl by mass?
 - I. Increasing temperature
 - II. Increasing pressure
 - III. Addition of more solvent
4. Which of the above generally increases the solubility of salts but decreases the solubility of gases in water?
5. How many grams of KNO_3 must be mixed with 50 g water to obtain saturated solution at 60°C ? (110 g KNO_3 /100 g water at 60°C)
6. 38 g of KI can be dissolved in 25 g water at 30°C . What is the solubility of KI at same temperature?
7. 31 g of KCl can be dissolved in 100 g water at 10°C . How many grams of KCl can be dissolved at most in 400 g of water at the same temperature?
8. How many grams of water are needed in order to prepare 30 % solution by dissolving 60 g of salt?
9. A 375 g sample of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is dissolved in 125 g of water. What is the mass percentage of the prepared solution?
10. Which of these may be done to decrease the mass percentage of a salt solution?
 - I. Addition of water
 - II. Evaporation of water
 - III. Addition of salt
11. The concentration of a solution can be decreased by adding water. This process is called
12. If a concentrated nitric acid is diluted, which of the following changes?
 - I. Molarity
 - II. Density
 - III. Mass percent
13. 150 g of water are added into 50 g of 40 % sodium nitrate solution. What is the mass percent of the new solution?
14. How many grams of water should be evaporated from 300 g of 4 % NaCl solution in order to get 10 % NaCl solution?
15. 0.4 moles of solid NaOH are dissolved in water to prepare a solution that is 20 % NaOH by mass. How many grams of water are used to prepare this solution?
16. How many grams of water must be added into a solution of 30 % 200 gram sugar solution to prepare 10% sugar solution?
17. What is the percentage concentration of the saturated solution of a salt whose solubility is 60 g/100 g H_2O at 20°C ?
18. How many grams of water must be evaporated from 1 kg of 5% table salt solution to make its percentage concentration equal to 20% by mass?
19. A solution has density of 1.2 g/cm^3 and contains 40 % NaCl by mass. How many grams of NaCl are there in 500 ml of this solution?
20. What is the percentage concentration of NaCl solution by mass by mixing 100 g of 25% NaCl, 60 g of 15% NaCl, 60 g of NaCl and 24 g of water?