

Solutions

- The solubility of a gas is 0.34 g/L at STP. What is its solubility at a pressure of 0.80 atm and the same temperature?
- At 25°C and 1.0 atm, 0.25 g of a gas dissolves in 1.00 L of water. What mass of the gas dissolves in 1.00 L of water at 25°C and 3.0 atm?
- 1.56 g of a gas dissolves in 2.00 L of water at a pressure of 1.75 atm. At what pressure will 2.00 g of the gas dissolve in 2.00 L of water if the temperature remains constant?
- What is the percent by mass of 92.3 g of potassium fluoride (KF) dissolved in 1000.0 g of water?
- A 500.0 g-sample of aqueous hydrogen peroxide (H_2O_2) contains 31.50% H_2O_2 by mass.
 - Find the mass of hydrogen peroxide in the solution.
 - Find the mass of water in the solution.
- If 24.0 mL of methanol (CH_3OH) is dissolved in 48.0 mL of water, determine the percent by volume of methanol in the solution.
- An aqueous solution of methanol is 45.0% methanol by volume.
 - Find the volume of methanol in a 250.0-mL sample of the solution.
 - Find the volume of water in this sample of the solution.
- What is the molarity of a solution that contains 20.45 g of sodium chloride (NaCl) dissolved in 700.0 mL of solution?
- Calculate the molarity of 0.205 L of a solution that contains 156.5 g of sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$).
- A 0.600-L sample of a 2.50M solution of potassium iodide (KI) contains what mass of KI?
- What mass of ammonium chloride (NH_4Cl) would you use to prepare 85.0 mL of a 1.20M solution NH_4Cl ?
- How would you correctly prepare 125 mL of a 0.30M solution of copper(II) sulfate (CuSO_4) from a 2.00M solution of CuSO_4 ?
- A 22.0-mL sample of 12M H_2SO_4 is diluted to a volume of 1200.0 mL. What is the molarity of the diluted solution?
- A mass of 134 g of manganese dibromide (MnBr_2) is dissolved in 225 g of water. What is the molality of the solution?
- Calculate the molality of a solution that contains 106 g naphthalene (C_{10}H_8) dissolved in 3.15 mol carbon tetrachloride (CCl_4).
- A solution is made by dissolving 425 g of nitric acid (HNO_3) in 535 g of water. Find the mole fraction of nitric acid in the solution.