

3. Provide formulas or names for the following compounds



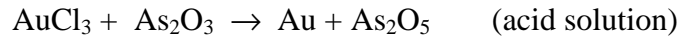
c. Iron(III) Carbonate

d. Hydrogen Peroxide



f. Acetic acid

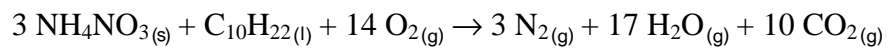
4. Balance the following redox equation:



5. A solution is prepared by dissolving 24.5 g of $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ in 355 g of water. Calculate the boiling point, and the osmotic pressure at 25 °C of this solution. Assume the density of the solution is 1.145 g/mL. $K_b=0.512 \text{ }^\circ\text{C}/\underline{\text{m}}$

6. An alloy of iron (71.0%), cobalt (12.0%), and molybdenum (17.0%) has a density of 8.20 g/cm^3 . How many cobalt atoms are in a cylinder with a radius of 2.50 cm and a height of 10.0 cm? Volume of a Cylinder = $\pi r^2 h$.
7. The molarity of a solution of potassium dichromate can be determined by titration with potassium iodide solution. In acidic solution, Dichromate ion is reduced to Chromium(III) ion and Iodide is oxidized to Iodine. Write the balanced net ionic and molecular equation for the reaction. What is the molarity of a solution of Potassium Dichromate if 48.5 mL of the solution requires 38.3 mL of 0.500 M Potassium Iodide solution for complete titration?

8. The bomb that destroyed the Murrow Federal Office Building in Oklahoma City in 1995 was constructed from ordinary materials: fertilizer (ammonium nitrate) and fuel oil (a mixture of long-chain hydrocarbons, similar to decane, $C_{10}H_{22}$). Determine the enthalpy change of the following explosive reaction using the appropriate heats of formation (ΔH_f of $C_{10}H_{22} = 249.7 \text{ kJ mol}^{-1}$).



9. Rhodium has a face-centered cubic structure. The unit cell for Rhodium has an edge length of 3.7900 Angstroms. What is the density of Rhodium?

10. Butanol ($C_4H_{10}O$) reacts in the gas phase with Oxygen in the air to produce Carbon Dioxide gas and water vapor. Write the balanced chemical equation for this reaction. If 35.4 mL of Butanol at $26.8^\circ C$ and a pressure of 867 mmHg reacts with 41.97 mL of Oxygen at $38.3^\circ C$ and 0.9990 atm, what will be the pressure of the products at STP?