

Concentration of Solutions Worksheet

Instructions:

Answer the following questions about solution concentrations. Show your work and include units in your answers.

Questions:

1. **Calculate the concentration of the following solutions in mol/dm³:** a) 0.10 moles of NaCl in 200 cm³ b) 0.20 moles of H₂SO₄ in 100 cm³ c) 0.020 moles of NaOH in 25 cm³
2. **Calculate the number of moles in the following solutions:** a) 100 cm³ of 0.20 mol/dm³ HNO₃ b) 25 cm³ of 1.50 mol/dm³ KOH c) 50 cm³ of 0.10 mol/dm³ H₂SO₄
3. **Calculate the concentration of the following solutions in g/dm³:** a) 0.100 mol/dm³ NaOH b) 0.250 mol/dm³ CH₃COOH c) 1.50 mol/dm³ HNO₃
4. **0.20 moles of NaOH is dissolved in 250 cm³ of water.** a) Calculate the concentration in mol/dm³. b) Calculate the concentration in g/dm³.
5. **5.0 g of KNO₃ is dissolved in 100 cm³ of water.** a) Calculate the concentration in g/dm³. b) Calculate the concentration in mol/dm³.

Formulas:

- **Concentration (mol/dm³) = moles / volume (dm³)**
- **Concentration (g/dm³) = concentration (mol/dm³) × Molar Mass (Mr)**
- **Mass = Molar Mass (Mr) × moles**

Remember:

- **Volume must be in dm³ (1 dm³ = 1000 cm³)**
- **Molar Mass (Mr) is the mass of one mole of a substance in grams.**

Additional Notes:

- **Make sure to convert volumes from cm³ to dm³ before calculating concentrations in mol/dm³.**
- **Use the correct Molar Mass (Mr) for each substance when calculating concentrations in g/dm³.**
- **Show all your work and include units in your answers.**
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