Name: _____ Group: _____ Date: _____

LAB 2
TECHNIQUE

PREPARING A SOLUTION BY DISSOLUTION

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Goals

– Prepare a solution of specified concentration by dissolution of a solid in a solvent.
– Compare the colour of the solution obtained to the colour of a control solution.

Preliminary calculations

How is a solution of 20 mL with a concentration of 50 g/L prepared?
Write down the calculations for preparing a solution of the amount and concentration specified.

Materials

- balance (accurate to 0.01 g)
- weighing pan
- spatula
- 10 g of coloured solid soluble in water
- graduated cylinder
- wash bottle of distilled water
- glass stirring rod
- test tube (18 mm × 150 mm) and stopper (No. 1)
- test tube (18 mm × 150 mm) of control solution
- test-tube rack

Procedure

1. Weigh and record the mass of the weighing pan.
2. Add to the weighing pan the amount of coloured solid needed for a solution of 20 mL with a concentration of 50 g/L (see Preliminary calculations).
3. Place the solid into the graduated cylinder.
4. Add about 15 mL of distilled water.
5. Mix with the glass stirring rod until dissolution is complete.
6. Add distilled water to obtain total volume of 20 mL.
7. Mix again with the stirring rod.
8. Pour the solution into the test tube.
9. Compare the colour of the solution obtained to the colour of the control solution.
10. Clean up and put away materials.

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Results

The colour of the solution obtained is _____ to the colour of the control solution.

Reflecting on the lab technique

1. What is the probable concentration of the control solution?

2. Is the nature of the solute important when preparing a solution of a specified concentration?

3. What happens to the concentration of a solution if more solute is added to the same volume of solvent?

4. What happens to the concentration of a solution if more solvent is added to the same amount of solute?

5. What are the possible sources of error in this lab?