

Preparation of a standard solution

Aim: To prepare 2.0 mol dm^{-3} standard sodium chloride solution using a 250 cm^3 volumetric flask.

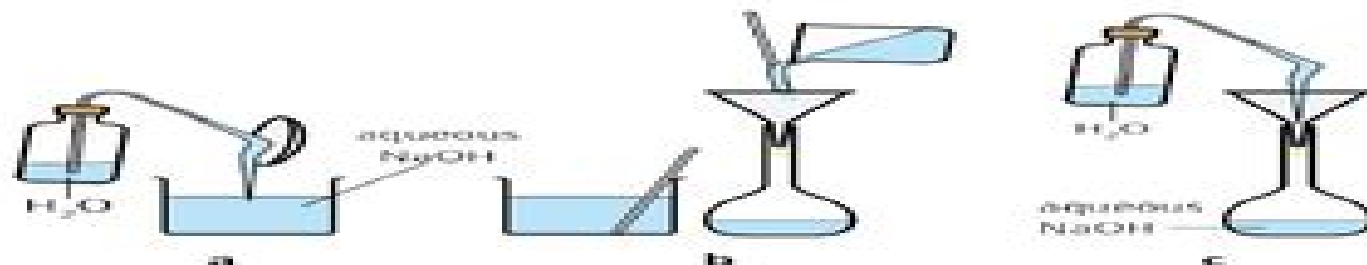
Tools 1: Experimental techniques – Applying techniques.

Available Apparatus: digital balance, volumetric flask, pipettes, and pipette bulbs, spatula, watch glass, beaker, funnel, stirring rod, and wash bottle.

Reagents: Sodium chloride, food coloring.

Preparation of sodium hydroxide solution.

1. Calculate the mass (in grams) of solid sodium hydroxide required to prepare 2.0 mol dm^{-3} solution in the assigned volumetric flask.
2. Place a watch glass on the analytical balance and press the 'Tare' button.
3. Accurately weigh approximately the amount of sodium chloride, you have calculated you need, recording the exact amount used.
4. Add approximately 50 cm^3 distilled water to the beaker and stir with a glass rod until the solid has dissolved.
5. Using a funnel, carefully transfer your solution to the volumetric flask given.
6. Add approximately 10 cm^3 distilled water to the beaker, rinse it around the beaker and add to the volumetric flask. Repeat with a further 10 cm^3 portion.
7. Carefully add distilled water to the volumetric flask, running it around the edge of the funnel to wash any remaining NaCl in, and also running it over the stirring rod to wash this in.
8. When the level of solution is within 1 cm of the graduation on the flask, add distilled water drop-wise using a pipette until the bottom of the meniscus is in line with the graduation mark.
9. Firmly place the lid on the volumetric flask, and invert it several times, holding the lid in place. You will know your solution is fully mixed when inverting it no longer makes it look 'swirly'.
10. Calculate the exact concentration (4 s.f.) of the solution, using the mass measured in Step 2 and label the flask with the solution, the concentration, the date of preparation and your name.
11. The solution should be stored in a cool dark place until it is to be used.



A. Calculate the mass of sodium chloride required to prepare a solution 2.0 mol dm^{-3} solution.

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Preparation Of Solutions Lab Report

Ying Liu



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