**PRACTICAL TECHNIQUES FOR TOPIC 2**

1. **preparing a standard solution from a solid**

* **weigh the required amount of solid into a weighing boat**
* **pour the solid into a beaker**
* **add enough water to dissolve the solid**
* **transfer the solution to a 250 cm3 volumetric flask**
* **make up to the mark with distilled water**

Techniques for good accuracy

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| Technique | Reason |
| Rinse the weighing boat after use and pour the rinsings into the beaker | Ensure all of the solid gets transferred from boat to beaker |
| Rinse the stirring rod after use and pour the rinsings into the beaker | Ensure that any solute particles left on the stirring rod are transferred back into the solution |
| Rinse the beaker after use and pour the rinsings into the volumetric flask | Ensure than all of the solute particles get transferred from beaker to volumetric flask |
| Rinse the funnel after use, allowing the rinsings to run into the volumetric flask | Ensure than any solute particles left on the funnel are transferred into the volumetric flask |
| Shake the mixture well when adding water | Ensure a uniform distribution of solute particles |
| Ensure the bottom of the meniscus lies on the line | To ensure that the volume of solution is exactly 250 cm3 |

1. **carrying out a titration**

* fill a burette with the required solution (usually acid)
* pipette a sample of the other required solution (usually alkali) into the conical flask
* add a suitable indicator
* add the acid to the alkali until the indicator changes colour
* record the volume of acid used

Techniques for good accuracy

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| Technique | Reason |
| Rinse the burette with acid before use | Ensure that any water or other substance left in the burette is washed out |
| Ensure the tap is full of liquid before use (with no air bubbles) | Ensure that the volume change is exactly the same as the volume of liquid delivered |
| Record all burette readings to 2 dp | Ensure that all readings are made to the nearest drip |
| Ensure the reading is taken from the base of the meniscus | Ensure that the correct volume delivered is calculated |
| Allow the pipette to empty under gravity | Ensure that the pipette delivers the correct volume (not too much) |
| Touch the surface of the liquid with the pipette tip after emptying | Ensure that the pipette delivers the correct volume (not too little) |
| Add only two drops of indicator | Because indicators are acidic and will affect the equivalence point |
| Add the acid dropwise at the end point | Ensure that the equivalence point is seen as it happens |
| Rinse the top of the conical flask with distilled water during the titration | Ensure that any acid or alkali is washed into the conical flask |
| Rinse the conical flask with distilled water after use | Ensure there are no moles of acid or alkali left behind |