

## 2.2: Water bath

Often a reaction mixture needs to be heated for a certain time for the reaction to happen. Heating directly on a Bunsen burner or on a hot plate is not uniform heating is associated with fire hazards. Heating the reaction mixture indirectly in a water bath achieves uniform heating with less fire hazard.

### 📌 Lab water bath setup

A water bath for qualitative analysis of cations is usually a 200 mL capacity beaker filled with distilled or deionized water up to about 150 mL mark and placed on a hot plate for heating. Ramp up the temperature control knob of the hot plate to a maximum in the beginning until the water starts boiling. Then set the temperature to 350 °C to keep it gently boiling as illustrated in Figure 2.2.1. Add water when the water level drops to the range  $\frac{1}{2}$  to  $\frac{1}{4}$ <sup>th</sup>, ramp up temperature again, and then re-set the temperature at 350 °C once it starts boiling again.

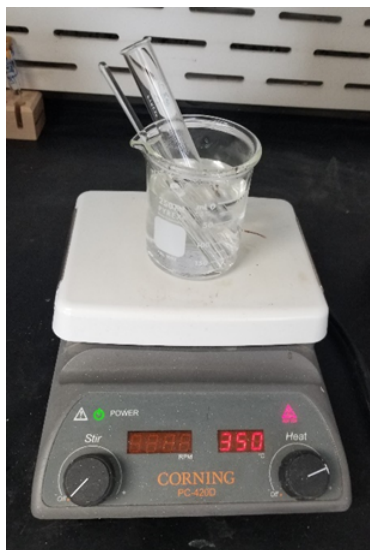


Figure 2.2.1: Water bath prepared for heating reactants in a test tube.

### 🚫 Caution

Hold the hot test tube with a test tube holder while stirring with a clean glass rod or while moving it to centrifuge. Never hold the hot test tube with a bare hand. Always point the mouth of the hot test tube away from you and away from any other person around. Hot test tubes and the hot liquid in the test tube can cause burns.

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