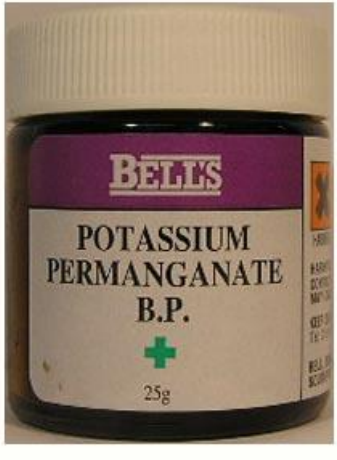
Ex 4 Preparation of potassium permanganate solution

Background

Potassium permanganate is difficult to obtain in a very pure state and cannot therefore be used as a primary standard. In this experiment you will prepare an approximately 0.02 mol L^{-1} $KMnO_4$ solution. This will be standardised in the next experiment.

Potassium permanganate decomposes slowly in solution, especially in sunlight, and readily oxidises organic matter. Because of this the solution should be used as soon as possible after standardisation and should be stored in a dark bottle in the absence of light.



Equipment required
Balance
Beaker (1 L)
Watchglass (large)
Filter funnel and stand
Glass wool (enough for a small plug)
Storage bottle (approximately 500 mL)
Distilled water
Potassium permanganate $KMnO_4$ (about 2 g)

Procedure
#1 Calculate the mass of $KMnO_4$ required to make up 50 mL of 0.02 mol $L^{-1}KMnO_4$ solution.
#2 Weigh out approximately the mass of solid $KMnO_4$ required and dissolve in 500 mL of water in a litre beaker.
Cover the beaker with a watchglass and boil the solution for 10 minutes.
#3 Cool the solution and filter through glass wool into a clean glass storage bottle.
Stopper the bottle and label it.

Processing of results, and questions
1 Why do you think the solution was boiled for 10 minutes prior to filtration and storage?