

QUANTITATIVE ANALYSIS: SODIUM HYDROXIDE IN TORUSSIL

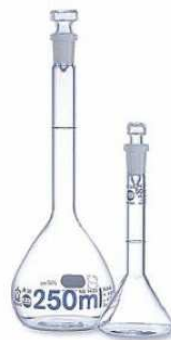
The technique of titration is used to find out accurately how much of a chemical substance is dissolved in a given volume of a solution, that is, the concentration of the solution



PIPETTE



BURETTE



VOLUMETRIC FLASKS

10,00 ml of Torusiil is transferred to 200,0 ml volumetric flask. Demineralised water is added to this sample to fill the flask to the reference-line. The flask is sealed with a rubber stopper and then shaken carefully (with inversion) to give a homogeneous solution.

A pipette is used to transfer 10,00 ml of this solution to a conical flask for each titration. A few drops of phenolphthalein is added to the sample in the conical flask. The solution turns pink.

The burette contains hydrochloric acid (HCl) with the concentration of 2,00M (mol/l). HCl is added drop wise to the solution in the conic flask. The disappearance of the pink colour marks the end of titration. At this point all sodium hydroxide has been neutralised by hydrochloric acid. During titration the reagents should be continuously stirred (swirl the conical flask).

To calculate the amount of sodium hydroxide in the samples and in torusiil you need at least three overlapping results (difference up to 0,1 ml).

Sample number	1.	2.	3.	4.	Average
V (HCl 0,200 M)					

1. Write the chemical equation describing the reaction between NaOH and HCl.
2. How many moles of HCl is used on average for one titration?
3. How many moles of NaOH is in the sample used for one titration?
4. How many moles of NaOH was in the original sample of torusiil?
5. Calculate the mass of pure NaOH in the original sample of torusiil.
6. Calculate the mass of the original sample of torusiil (density 1,166 g/cm³).
7. Calculate the concentration of NaOH in torusiil.