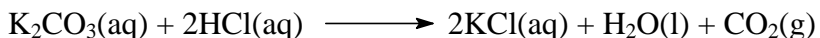


Back-titration Practice Problems

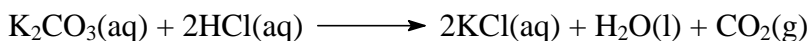
You should be able to solve all of these problems without using a calculator.

1. A 1.3820 gram sample of K_2CO_3 (138.20 g/mol) is dissolved in enough water to make 250.0 mL of solution. A 25.00 mL aliquot is taken and titrated with 0.1000 M HCl:

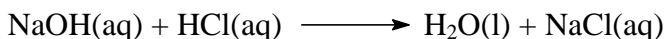


How many mL of HCl are used? **(20.00)**

2. A 0.6910 g sample of K_2CO_3 (138.20 g/mol) is dissolved in enough water to make 200.0 mL of solution **A**. A 20.00 mL aliquot of solution **A** is taken and put into an Erlenmeyer flask. To the flask is added 20.00 mL of 0.2000 M HCl:

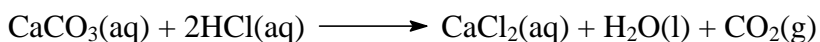


The resulting solution is then titrated with 0.1500 M NaOH.



How many mL of NaOH are used? **(20.00)**

3. A 0.4004 gram sample of CaCO_3 (100.1 g/mol) is added to a flask along with 15.00 mL of 2.000 M HCl.

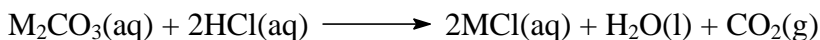


Enough water is then added to make 200.0 mL of solution **A**. A 10.00 mL aliquot of solution **A** is taken and titrated with 0.1100 M NaOH.

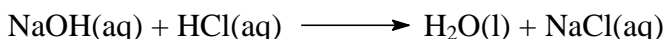


How many mL of NaOH are used? **(10.00)**

4. A 0.7389 gram sample of M_2CO_3 was taken and dissolved in enough water to make 100.0 mL of solution **A**. A 10.00 mL aliquot of solution **A** was taken and 25.00 mL of 0.2000 M HCl added.

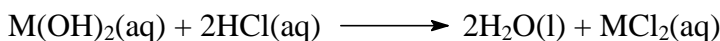


It took 20.00 mL of 0.1500 M NaOH to titrate the resulting solution.

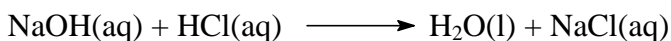


What is the metal, M? (**Li**)

5. A 1.1664 gram sample of $M(OH)_2$ was mixed with 25.00 mL of 3.000 M HCl and enough water added to make 100.0 mL of solution **A**.

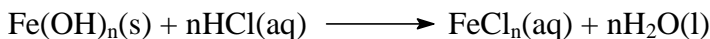


A 10.00 mL aliquot of solution **A** was taken and titrated with 20.00 mL of 0.1750 M NaOH.

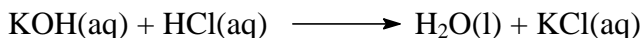


What is the metal, M? (**Mg**)

6. A 1.0687 gram sample of $Fe(OH)_n$ was mixed with 20.00 mL of 2.000 M HCl and enough water added to make 200.0 mL of solution **A**.



A 20.00 mL aliquot of solution **A** was taken and titrated with 20.00 mL of 0.05000 M KOH.



What is the value of n? (**3**)