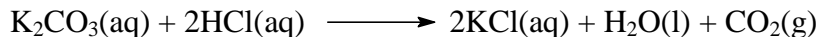


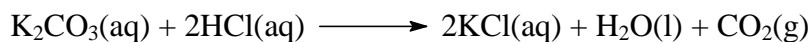
Back-titration Practice Problems

1. A 1.0000 gram sample of K_2CO_3 (138.2055 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:

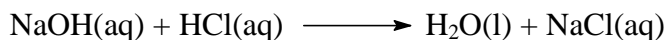


How many mL of HCl are used? **(14.47)**

2. A 0.6000 g sample of K_2CO_3 (138.2055 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 0.1700 M HCl:

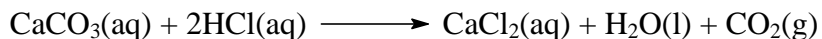


The resulting solution is then titrated with 0.1048 M NaOH.

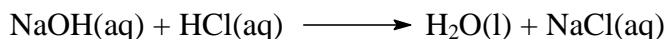


How many mL of NaOH are used? **(24.16)**

3. A 0.4108 gram sample of CaCO_3 (100.087 g/mol) is added to a flask along with 15.00 mL of 2.000 M HCl.

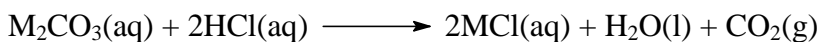


Enough water is then added to make 250.0 mL of solution **A**. A 20.00 mL aliquot of solution **A** is taken and titrated with 0.1160 M NaOH.

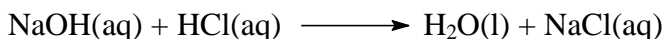


How many mL of NaOH are used? **(15.03)**

4. A 0.6181 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 0.1842 M HCl added.



It took 19.90 mL of 0.1473 M NaOH to titrate the resulting solution.



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

5. A 0.9030 gram sample of $M(OH)_2$ was mixed with 20.00 mL of 2.000 M HCl and enough water added to make 100.0 mL of solution **A**.

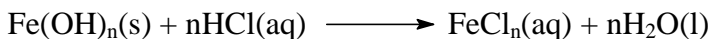


A 10.00 mL aliquot of solution **A** was taken and titrated with 17.64 mL of 0.05121 M NaOH.

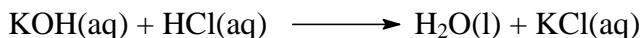


What is the metal, M? (**Mg**)

6. A 1.0101 gram sample of $Fe(OH)_n$ was missed with 20.00 mL of 2.000 M HCl and enough water added to make 200.0 mL of solution **A**.



A 25.00 mL aliquot of solution **A** was taken and titrated with 14.56 mL of 0.1000 M KOH.



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