**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chapter 6-Double Replacement Lab**

**Chemical Reactions**

**Introduction:** A *double displacement reaction* or *metathesis* reaction involves the reaction of two compounds to form two new compounds. In effect, the compounds change partners with each other.  This experiment will provide you with opportunities to observe several of these double displacement reactions.

**Purpose:** To observe the formation of new substances in double displacement reactions.

**Hazardous chemicals:** silver nitrate, iron (III) chloride, sodium hydroxide

**Equipment:** 10 test tubes, test tube rack, 10 mL graduated cylinder

**Materials:** Sodium Chloride, silver nitrate, potassium iodide, iron (III) chloride, sodium hydroxide, potassium nitrate, sodium carbonate, and calcium chloride

**Procedure:**

* **Before you to lab, have the following information ready. You need solutions of 0.1 M concentration. Calculate the number of grams of each substance required to make the correct volume of each 0.1 M solution required.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Compound** | **Molecular Formula** | **Molecular**  **Mass** | **Number mL required** | **Number of grams required** |
| **Sodium Chloride** |  |  | **10** |  |
| **Silver**  **Nitrate** |  |  | **10** |  |
| **Potassium iodide** |  |  | **5** |  |
| **Sodium Hydroxide** |  |  | **5** |  |
| **Potassium Nitrate** |  |  | **5** |  |
| **Sodium Carbonate** |  |  | **5** |  |
| **Calcium Chloride** |  |  | **5** |  |

1. **Label 10 test tubes 1-10 and place them in the test tube rack**
2. **Add the appropriate amount of each chemical using the graduated cylinder. Be sure to rinse your graduated cylinder in between each measurement.**

|  |  |
| --- | --- |
| **Test Tube** | **Amount needed** |
| **1** | **5 mL sodium chloride** |
| **2** | **5 mL silver nitrate** |
| **3** | **5 mL silver nitrate** |
| **4** | **5 mL potassium nitrate** |
| **5** | **5 mL Iron (III) chloride** |
| **6** | **5 ml sodium hydroxide** |
| **7** | **5 mL sodium chloride** |
| **8** | **5 mL potassium nitrate** |
| **9** | **5 mL sodium carbonate** |
| **10** | **5 mL calcium carbonate** |

1. **Record the appearance of each reactant solution before mixing.**

|  |  |
| --- | --- |
| **Test Tube** | **Appearance** |
| **1** |  |
| **2** |  |
| **3** |  |
| **4** |  |
| **5** |  |
| **6** |  |
| **7** |  |
| **8** |  |
| **9** |  |
| **10** |  |

1. **Mix the contents of tubes 1 & 2 by carefully pouring the contents of one into the other**
2. **Repeat procedure #4 for the following pairs of tubes:**
   1. **3&4**
   2. **5&6**
   3. **7&8**
   4. **9&10**
3. **Observe each of the mixtures and record any evidence of a reaction**

|  |  |
| --- | --- |
| **Test Tube** | **Reaction? Yes or No** |
| **1&2 mixed** |  |
| **3&4 mixed** |  |
| **5&6 mixed** |  |
| **7&8 mixed** |  |
| **9&10 mixed** |  |

1. **Describe the appearance and color of any product that may be formed.**

|  |  |
| --- | --- |
| **Test Tube** | **Appearance** |
| **1&2 mixed** |  |
| **3&4 mixed** |  |
| **5&6 mixed** |  |
| **7&8 mixed** |  |
| **9&10 mixed** |  |

1. **Clean the test tubes and dispose of the wastes in the waste container provided.**

**Questions:**

1. **How did you know a reaction occurred in a test tube?**
2. **Write a balanced equation for each reaction**

|  |  |
| --- | --- |
| **Test Tube** | **Balance Equation** |
| **1&2 mixed** |  |
| **3&4 mixed** |  |
| **5&6 mixed** |  |
| **7&8 mixed** |  |
| **9&10 mixed** |  |

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