**Student Worksheet**

**Practical 9: Some reversible reactions:**

**The reactions:**

Use the following reactions to explain your observations:

1. **Aqueous iodine:**

 I2(aq)  +  2OH-(aq)       I-(aq)   +   IO-(aq)  + H2O(l)

Brown                        Colourless

1. **Aqueous potassium dichromate (vI):**

2K2CrO4(aq)  +  2H+(aq)     2K2Cr2O7(aq) + H2O(l)

Yellow                            Orange

1. **Bromothymol blue indicator:**

HIn(aq)                           H+(aq)       +      In-(aq)

Yellow                                    Blue

**Equipment/materials**

* Iodine water
* 0.2M potassium chromate (VI)
* 1M H2SO4 and NaOH
* Bromothymol blue
* Spatulas
* Pipettes

**Procedure**

1. **Aqueous iodine:**
2. Add about a cm depth of iodine water to a test tube.
3. Add sodium hydroxide until you notice a colour change.
4. Now add sulphuric acid until you see a colour change.
5. Repeat steps (2) and (3).
6. Record your observations.
7. **Aqueous potassium chromate (vI):**
8. Add about a cm depth of potassium chromate (VI) to a test tube.
9. Add sulphuric acid drop-wise until you notice a colour change.
10. Now add sodium hydroxide drop-wise until you see a colour change.
11. Repeat steps (2) and (3).
12. Record your observations.
13. **Bromothymol blue indicator:**
14. Add half a pipette of bromothymol blue to half a small beaker of water.
15. Add sulphuric acid drop-wise until you notice a colour change.
16. Now add sodium hydroxide drop-wise until you see a colour change.
17. Repeat steps (2) and (3).
18. Record your observations.

**Safety**

* Wear goggles.
* Potassium chromate(VI) is harmfull
* 1 mol dm–3 H2SO4 and NaOH is irritant, but it is wise to treat it as corrosive.
* Iodine is an irritant
* Conc HCl is corrosive



Harmful



Irritant



Corrosive

**Objective**

* Understand that some reactions are reversible.
* That a reversible reaction can occur in either direction.

**Questions**

1. Use the reactions to explain your observations.