

Simple Qualitative Analysis

Materials Required for this Experiment for 32 students.

Chemicals

Four 100mL bottles of each of the following 0.25M solutions:

1. $\text{Cu}(\text{NO}_3)_2$
2. $\text{Ba}(\text{NO}_3)_2$
3. $\text{Fe}(\text{NO}_3)_3$
4. NaHCO_3
5. KSCN

Four small bottles with droppers (50mL) 6M NH_4OH (also called $\text{NH}_3(\text{aq})$)

Four small bottles with droppers (50mL) 3M Sulfuric Acid

Four small bottles with droppers (50mL) 3M Hydrochloric acid

Four small bottles with droppers (50mL) 3M NaOH

36 unknowns in test tubes using all the chemical solutions above except hydrochloric acid.

Supplies

150 disposable pipettes

blue and red litmus papers (four bottles of each type)

Sixteen 24-well plates

16 test tube racks

32 pieces of nichrome wire

16 small-cut sand papers

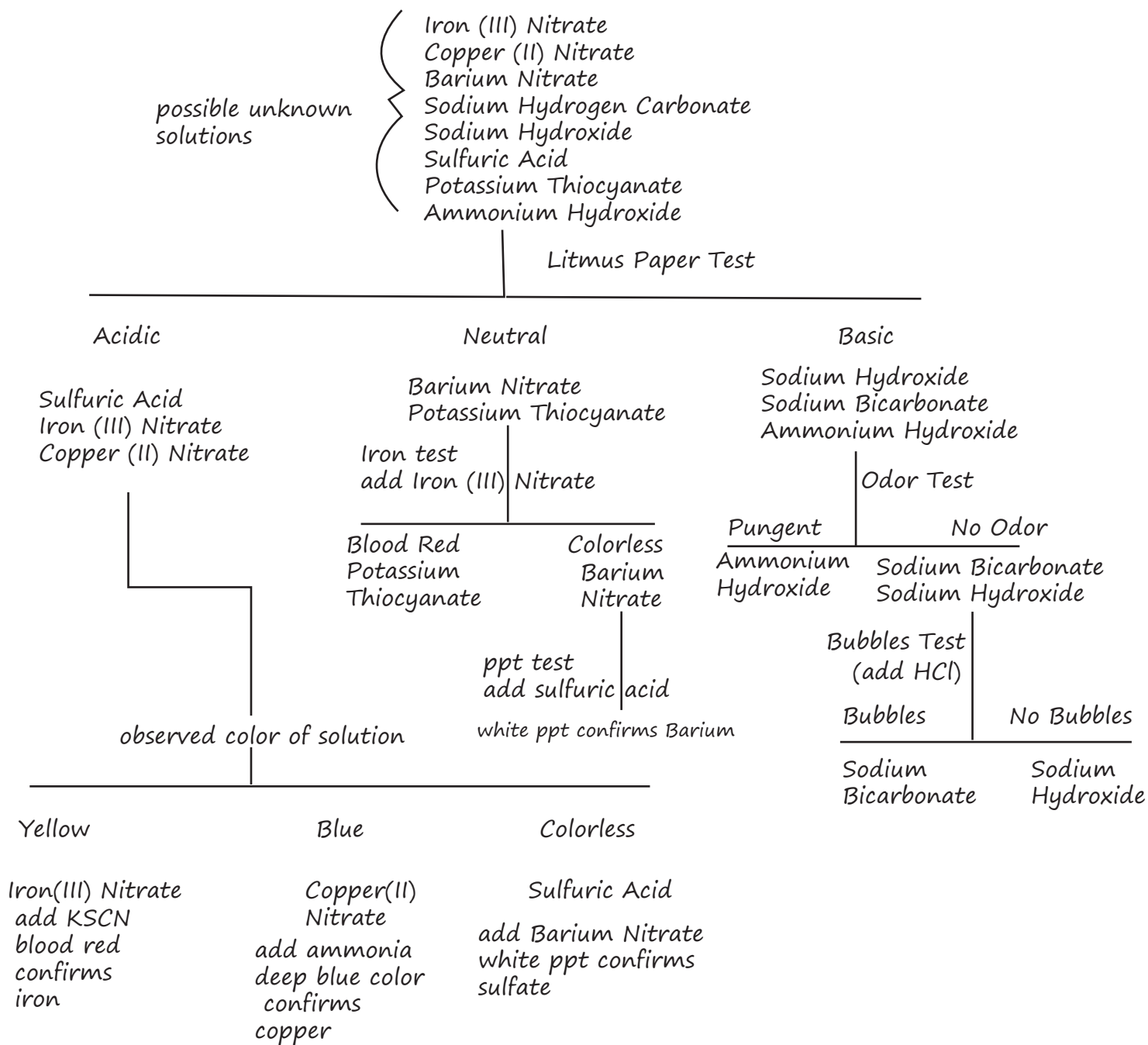
Procedure

Using the qualitative analysis scheme provided carry out the tests on all the knowns and on your unknown. Record all observations carefully.

Analysis and Conclusion

Determine the identity of your unknown solution and explain your reasoning in detail.

Qualitative Analysis Scheme



In addition to the tests in this scheme you can dip a piece of nichrome wire into the solutions and place this in a flame. Different substances have different characteristic colors.