**Qualitative testing for biological molecules – proteins (Biuret test) STUDENT**

**Introduction**

A qualitative test just gives us a positive / negative result to tell us whether a particular substance is present. It does not tell us how much of the substance is present (or at what concentration). The Biuret test is simple in principle especially when the sample to be tested is a clear, colourless solution. If the sample itself is coloured and incompletely dissolved (e.g. mashed liver suspended in water) it can be difficult to see the colour change when the test solution is fully mixed with the sample. In such a case it is often possible to observe any colour change more clearly by layering the test solution on top of the sample and looking for colour change at the interface where the test solution touches the sample.

**Aim**

* To test qualitatively for the presence of protein.

**Intended class time**

* Less than 30 minutes

**Equipment**

* Distilled water
* Protein suspension
* 2 test tubes
* 5 cm3 syringe
* Pipette
* Sodium hydroxide solution
* Copper sulfate solution

**Method**

*Note: eye protection must be worn.*

1. Use the syringe to add 2 cm3 distilled water to one of the test tubes.
2. Add 2 cm3 sodium hydroxide to the water.
3. Shake gently to mix.
4. Using the pipette and holding the tube at a 45° angle, carefully allow a small volume of copper sulfate to slide down the side of the tube so it forms a layer at the top of the mixed solution.
5. Look for any colour change at the top of the solution, where the copper sulphate is sitting, and record your observations.
6. Shake gently to mix.
7. Observe and record the colour and appearance of the resulting solution.
8. Carefully set the tube aside.
9. Repeat the procedure using the protein suspension instead of the distilled water in a clean test tube.

**Questions**

1. What colour did the test turn when performed on distilled water?
2. What colour did the test turn when performed on the protein suspension?
3. What is the biochemical explanation for the positive result with the biuret test?

**To submit**

For this piece of work to count towards Practical Activity Group 9 of the GCE Biology Practical Endorsement, you need to have evidence of your results from the Biuret tests as described above. You also need to have considered the above questions as the answers to these questions will aid you in preparation for your written examinations.