**Experiments to determine structure and bonding**

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| **Safety:**   * Wear eye protection. * Cyclohexane is harmful and highly flammable. * Transfer test tubes producing unpleasant fumes to fume cupboard. * Iodine is harmful. Use gloves when handling, wear eye protection, do not inhale. | Highly flammable    Harmful |

**Method:**

**1) Solid conduction:**

* Place a heaped spatula of substance into a baby beaker.
* Use a conduction circuit placing the electrodes into the substance. **Make sure they are not touching**.
* Record your observation.

**2) Solubility in a) water (polar) and b) cyclohexane (non polar):**

* Place the end of a spatula of substance into 2 test tubes.
* **a)** Add a pipette of water to one, bung and shake. If this dissolves do **Expt 3** now.
* **b)** Add a pipette of cyclohexane to the other, bung and shake.
* Record your observations.

**3) Conduction when dissolved in water (polar solvent):**

* To the spatula of substance in your baby beaker in **expt 1**add distilled water until 3/4's full.
* Use the conduction circuit placing the electrodes into the solution. **Make sure they are not touching**.
* Record your observation.

**4) Melting / boiling points:**

* Place a spatula of substance into a clean dry boiling tube.
* Heat gently for 30s then strongly for 1 minutes.

**IF ANY FUMES ARE GIVEN OFF – TAKE TO A FUME CUPBOARD IMMEDIATELY.**

* Record your observations.

**Do this for all 6 compounds, plus 3 unknowns – A, B and C**

**Technicians list:**

**Solid iodine Glucose SiO2 NaCl Watch glasses**

**Cyclohexane Potassium sulphate conduction apparatus**

**A = Stearic acid B = Copper sulphate C = Iron fillings**