Tests for identifying Organic substances

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **water** |  **Na2CO3 (aq)** | **Mg or Zn** | **conc NaOH or HCl** | **Br2 (aq)** | **acidified** **MnO4-** | **acidified** **Cr2O7 2-** | **Universal indicator** | **DAMP litmus paper** |
| **alkane** | immiscible, alkane floats on top, two different layers are visible  | immiscible, alkane floats on top, two different layers  |  |  | orange 🡪 colourless after 10 mins in lightsubstitution reaction2 products formed(HBr and1-bromoalkane |  |  |  |  |
| **alkene** | immiscible, alkene floats on top, two different layers are visible | immiscible, alkene floats on top, two different layers  |  |  | orange 🡪 colourlessimmediatelyaddition reaction1 product formed; dibromoalkane | purple 🡪 colourlessoxidation reactiondiol formed |  |  |  |
| **alcohol (primary & secondary)** | soluble (up to 5 carbon atoms in chain length) | soluble (up to 5 carbon atoms in chain length) |  |  |  | purple 🡪 colourlessoxidation reactioncarboxylic acid formed | orange 🡪 greenoxidation reactioncarboxylic acid formed  | **green** neutral |  |
| **carboxylic acid** | soluble (up to 5 carbon atoms in chain length) | neutralisation reaction,bubblingsalt\*\*, water and carbon dioxide formed | bubbling as hydrogen gas formed as well as a salt and water  | neutralisation reactionwith NaOH to formsodium salt of the acid |  |  |  | **orange** or **yellow** weak acid | **blue** litmus turns **red** |
| **amine** | soluble (up to 5 carbon atoms in chain length) | soluble (up to 5 carbon atoms in chain length) |  | neutralisation reactionwith HCl to form ammonium chloride salt  |  |  |  | **blue** weak base | **red** litmus turns **blue** |

\* water is a polar molecule, many organic substances eg *bromine water, hexane* are non-polar

polar and non-polar substances do not dissolve in each other, because of this, two layers form as polar and non-polar layers do not mix.

\*\* sodium ethanoate (with ethanoic acid, sodium propanoate (with propanoic acid)

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