Testing for Reducing Sugars

Benedicts Solution is an alkaline solution of Copper (2) Sulphate.

- Mix test solution with equal amount of Benedicts solution •
- Heat for atleast a minute

In the presence of reducing sugars Benedicts solution turns from blue to a brick red or orange.

The test for a reducing sugar is referred to as semi quantitative because the colour of the mixed solution gives us an approximation of how much sugar is in the solution. Darker orange/reds meaning a higher percentage of sugar and yellow/greens meaning a lower percentage. ...Basically you can't put an exact number on it.

Testing for Non-Reducing Sugars

- Use a sample and add dilute Hydrochloric acid
- Boil/Heat (this hydrolyses the glycosidic bonds)
- Add Sodium Hydrogen Carbonate until neutral
- Re-test using Benedicts reagent

Test for Starch

Iodine solution turns from orange to a blue/black in the presence of starch. CO, UK Properties of Starch (starch is a polysaccharide):

- th main function Compact - good for energy store
- Insoluble- doesn't a fect water potential
- makely hydrolysed dewo tion
- Its branched chains can be acted on to increase the rate of being hydrolysed down

Properties of Glycogen (a polysaccharide):

- Found in the liver and muscle cells of animals •
- Never found in plant cells
- Compact- good for energy storage
- Very rapidly hydrolysed down for respiration and ATP (animals need a faster release of energy as we have a high metabolic rate
- Insoluble- doesn't diffuse out of cells, doesn't affect water potential

Properties of Cellulose (a polysaccharide):

- Composed of β-glucose
- Chains are straight and unbranched due to hydrogen bonds and the 180 degree rotation of the monosaccharides
- Hydrogen bonds in cellulose crosslink between adjacent chains- making it very strong
- Molecules are grouped to form microfibrils with then form fibres

Happy Revising 😳