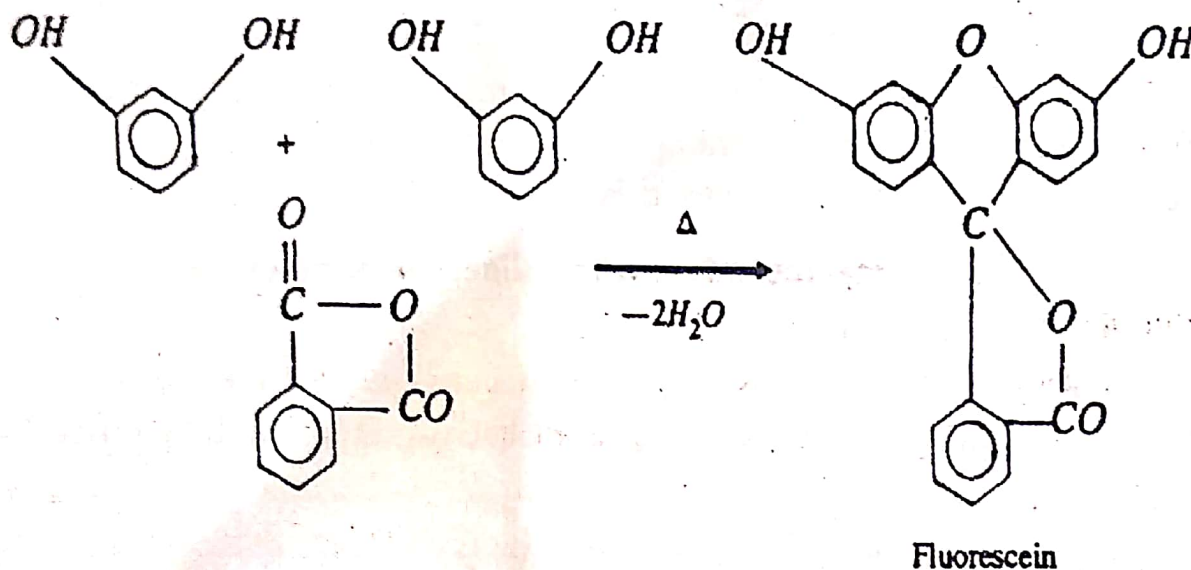


It is colourless crystalline in nature. It is insoluble in water but soluble in alcohol. It is an important acid—base indicator. It is colourless in acidic medium but shows pink colour in alkaline medium.

### 2. Fluorescein :

It is prepared by heating pythalic anhydride and 1, 3 benzenediol (1 : 2) in the presence conc.  $H_2SO_4$ .

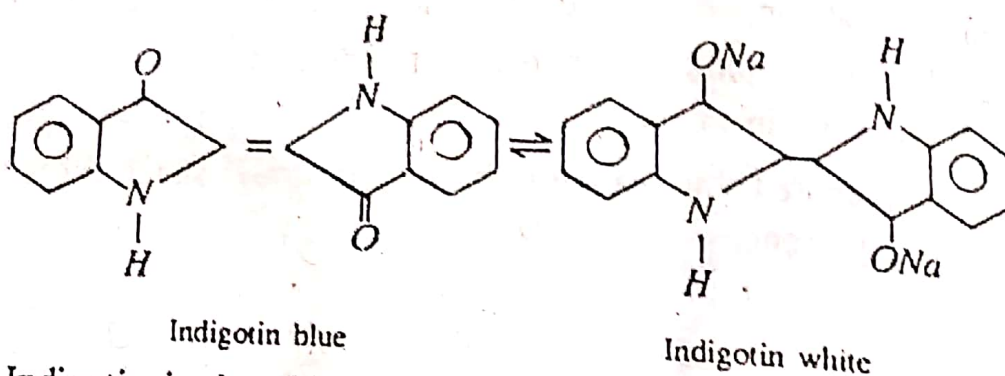


Its sod. salt called uranine, dyes wool and silk yellow from an acid bath. It is red powder insoluble in water. Its alkaline solution is reddish brown but on dilution, it gives yellow green fluorescence.

**3. Eosin and Mercurochrome :** Eosin is the brominated product of fluorescein. It is used for dyeing wool or silk. It is also used for making red ink. Mercurochrome is obtained by mercuration of dibromofluorescein followed by caustic soda treatment. It is deep red dye. Its 2% solution is used as antiseptic.

Q.6. What are Vat dyes ? How is it used as a dye ?

Ans. : Vat Dyes : These are water insoluble, hence cannot be used as such. However they can be reduced to water or alkali soluble leuco forms which are readily absorbed by fibres. These are mostly used on cotton. After dyeing with leuco base, the cloth is subjected to aerial or chemical oxidation when it returns to the original insoluble coloured form. Originally, the reduction was done by fermentation in Vats, hence the name. Indigotin is an important vat dye. Indigotin in a dark blue powder having m.p.  $390^{\circ}\text{C}$  with coppery lusture. When reduced with sodium hyposulphite  $\text{Na}_2\text{S}_2\text{O}_4$ , in alkaline solution, it forms a water-soluble leuco base indigotin white. On-oxidation, it is oxidised to indigotin blue. Hence the cloth gets a dark blue colour. The colour is very fast to laundry, light etc., but the shade is dull and not attractive.



Indigotin is the oldest known organic dye. It was obtained mainly from the plants of Indigofera species. The indigo is a mixture of several related dyes. The main indigotin is loosely called as indigo.

Q.7. How is indigo (or indigotin) obtained and synthesised ?

Ans. : Preparation :

1. From Indigo plants : Indigo plants are cut shortly before flowering. These are treated with warm water in vats. The enzyme indimulase present in their leaves hydrolyses the glycoside indican into indoxyl and glucose. The extract is agitated with lime in open vats where indoxyl is oxidised to crude indigotin as blue flakes. These are separated and crystallised with boiling water.

