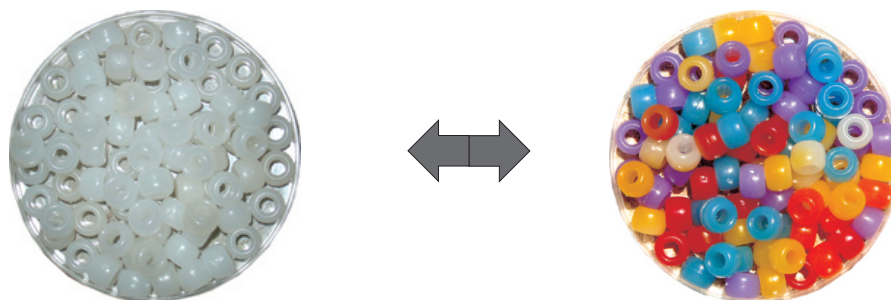


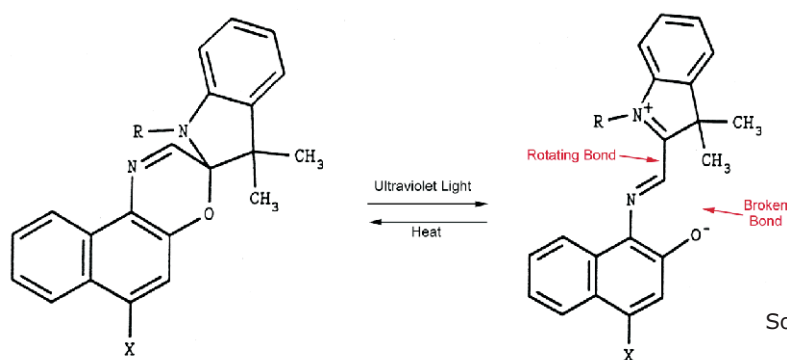
UV DETECTION BEADS



Materials that change colour when absorbing light of high frequency are known as **photochromic** (PC). The phenomena is known as **photochromism**.

Photochromic materials have the ability to change their chemical structure reversibly after absorbing UV light.

Photochromic dyes are normally colourless in their unexposed state but when exposed to UV light, the molecules become excited and the molecular structure is changed by the "opening" of aromatic rings. Some chemical group rotation takes place and the molecule acquires the ability to absorb photons of visible radiation and appear colourful.



Ground state dye molecule
Colourless

Excited dye molecule
Colourful

Source: Color Change Corporation

When the UV source is removed, the molecules gradually relax to their ground state, the carbon-oxygen bond renews and the molecule returns to its colourless state.

Long term exposure to UV light sources is the primary factor in degradation of the dyes as the open ring molecule (coloured form) is much less stable than the colourless form and susceptible to chemical attack by oxygen and free radicals. Nevertheless - the colour change can be cycled thousands of times between the two states.

A well-known application of PC materials is that of colour changing lenses for sunglasses. Other applications are screen printing inks, toys, cosmetics and some industrial applications.

For more information visit:
Wikipedia on the Net
Color Change Corporation (www.colorchange.com)

