

## **E2:22: Preparation of p-CuCNS films on ITO glass substrates and their dye-sensitisation**

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Preparation of p-CuCNS on copper substrates and their dye-sensitisation with cationic triphenylmethane and xanthenes dyes has been reported. Reaction of electrolytically deposited copper on ITO plates in the presence of excess thiocyanate ions produces p-CuCNS films. This procedure allows better spectral characterisation of CuCNS films and its dye adsorbed derivatives. The following dyes in their thiocyanate forms have been employed for dye-sensitisation: methyl violet, crystal violet, magenta, malachite green, rhodamine 6G, rhodamine B and quinaldine red. Photocurrent spectra and I-V characteristics were obtained using standard photoelectrochemical techniques. 0.2 M NaI at a pH of 7.0 was used as the electrolyte.

Photocurrent spectra exhibited maxima at wavelengths close to the absorption spectral maxima of dyes indicating hole transfer from the excited dye to p-CuCNS. Quantum efficiencies at the dye maxima were around 15-20%. The stability of the photocurrent over a period of 2 h showed only a small decrease in photocurrent under constant illumination (<20%). Photocurrent transients at potentials well negative of the flat band potential showed that these films were relatively free from surface states.