

Pollution Control



Phenol derivatives such as chlorinated phenols are well-known pollutants. They are spread through the environment due to their discharge from industrial plants or factories and because of their use as pesticides. The European Economic Community (EEC) and USA have included phenols and substituted-phenols among the priority pollutants. One of the methods for purification of water is photochemical destruction of pollutants using UV light. However, photodegradation products for some of the chlorinated phenols are more toxic than the parent compounds. Photosensitized oxidation has been suggested as a possible solution to this problem. We explore the use of phthalocyanines as photosensitizers in the transformation of chlorinated phenols and other pollutants.

Analysis of low concentrations of the pollutants in water is desirable. Electrochemical methods are superior to spectroscopic methods because of (i) low cost of the equipment (ii) portability and (iii) high sensitivity. We plan to improve the stability and sensitivity of the electrodes for analysis and degradation of phenolic and other pollutants by modifying them with phthalocyanine catalysts.