E2-52: Adsorption characteristics of organic dyes on ball clay

Namal Priyantha, Nalin Harischandra, Saman Keerthiratne
(*Dept of Chemistry, University of Peradeniya*)

The discharge of coloured industrial effluents, which normally consist of organic dyes, poses a significant impact on the environment due to their hazardous nature. Effective removal of colour from industrial waste has thus become a great necessity. Efficient removal methods should be not only simple and cost-effective, but also environmentally friendly.

Ball clay particles exhibit a significant colour removal ability from solutions of organic dyes such as malachite green, methylene blue, crystal violet, magenta colour, congo red and those used in textile dyeing processes, over a wide concentration range. Adsorption isotherm analysis suggests that multilayer adsorption is a possible mechanism for the colour removal process by ball clay. The linear relationship between the amount of dye adsorbed by ball clay and the bulk concentration of dye species supports this suggestion.