Session IV: Environmental Sustainability

Environmental sustainability of dye industry: Treatment of effluents by CWO technology

Prof. Suresh K. Bhargava
Deputy Pro-Vice Chancellor (International), RMIT University, Australia

Prof Suresh K Bhargava is the Deputy Pro-Vice Chancellor (International) at the college of Science, Engineering and Health involved in developing and implementing RMIT University's strategic vision, and foster excellence in teaching, research and professional activities. In addition, he is also responsible for establishing, maintaining and strengthening key research links with Indian institutions. Professor Bhargava is also the founder director of the Indian Institute of Chemical Technology (IICT)-RMIT joint research centre, Hyderabad, India, jointly funded by Government of India (CSIR) and RMIT University. The centre is specially designed to train bright Indian graduates, undertake industrial environmental problems related to the air pollution control, waste water treatment, nanotechnology and green chemistry.

Professor Bhargava completed his PhD from UK and was awarded Honoris Causa D.Sc. conferred by Rajasthan University, Jaipur, India, presented by the President of India. He is one the most cited professors at RMIT and has won several prestigious national and international awards. Some of these are Fellow of RACI, ATSE, Exxon Mobil award, Ralph McIntosh medal, Worley Parsons Award, RK Murphy Medal, AGR Matthey Gold medal. He has been scientific advisor to Govt. of India under various science and technology programs. Also most recently, he has been chosen for another prestigious award in India "The CRSI medal 2013" which will be conferred on him at BHU, India on 3rd Feb 2013. He is a consultant and advisor to many governments' bodies and industries around the world including India, BHPBilliton, Alcoa World Alumina, Rio Tinto, Mobile Exxon and Aditya Birla Group of Industries.

Contd.....

Abstract:

Effluents from the dye industry impose serious environmental problems because of their colour and their high chemical and biological oxygen demand (COD and BOD). Discharge of highly coloured waste is not only displeasing but it also interferes with the transmission of light and upsets the biological eco-system. The majority of these dyes are toxic to the environment and may lead to mutations and cancers in animals. The removal of colour and COD from effluents of dye industry is currently a major problem. Although, there are several technologies available for the treatment of effluent such as biodegradation, bioaccumulation, sorption, oxidative and electrochemical degradation, Development of catalytic wet oxidation (CWO) using various catalysts has been attempted in order to reduce the severity of oxidation conditions (high pressure and high temperature). However, more and more efforts have been focused on developing new processes to improve the efficiency of CWO, such as preparation of new type of heterogeneous catalysts with high catalytic activity. The use of catalysts makes the reaction conditions milder than uncatalysed wet oxidation and recently various kind of supported nanocatalytic materials have also been introduced and by virtue of their large surface area, that exhibit greater catalytic activity in CWO.

Professor Bharagva will also give a general view of studying and possible research collaboration with top Australian universities in particularly with RMIT University.