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Session III: Process Intensification

Technologies for sustainable development in specialty chemicals industry

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Dr. Palekar is a chemical engineer and holds a Ph. D. (Tech.) from UDCT. He worked in Petrochemical Lab, University of Gent, Belgium as a Post-doctoral Fellow. On return to India, he worked at UDCT for a year before joining Hindustan Lever Ltd.'s research center in Mumbai. He has worked for over 25 years in with Indian companies as well as MNCs including Privi Organics, Polychem and Hindustan Lever. He was Regional Business Director- Asia Pacific & Middle East and Director in Rhodia India from 1996 to 2007 and President- Pharma Intermediates, Atul Ltd. and Managing Director, Atul Bioscience Ltd. from 2007 to 2014.



Currently, Dr. Palekar is with STEP Pvt. Ltd. as Head- Strategy & Technology and works in the area of sustainable development, water/waste management and infrastructure projects. He is also business advisor to two Indian chemical companies and to the equity research wing of a major finance company. He is associated with 4 Japanese companies including Summit Agro International for contract manufacturing of specialty chemicals and intermediates for pharmaceuticals, agrochemicals and polymers.

Dr Palekar has managed various businesses such as flavor and fragrance ingredients and pharma intermediates. He has marketing experience in adhesives, agrochemicals, dyes, paints, petrochemical and polymer emulsions. He has successfully handled process development and scale-up, production and factory management, techno-commercial marketing and sourcing, P&L responsibilities, due diligence of companies for acquisitions within and outside India, process intensification and new technologies such as cavitation, chromatographic separation and novel reactor design.

Abstract:

With conventional resources (oil, coal) depleting rapidly companies and governments are actively exploring renewable carbon sources by way of biorefineries and renewable energy sources such as solar and biofuels. Different approaches for water management – recycle and rain water harvesting – are also being examined closely. Countries and multinational companies have already started setting up sustainability targets for reducing carbon/ water/ energy footprints. In India, some business groups have started working on sustainable development. The clampdown/ tightening in effluent discharge norms across India is pushing companies to move towards sustainable development and process intensification.

The presentation will provide information on sustainable development via process intensification made possible by adopting emerging technologies. These include a novel reactor, Downflow Gas Contactor (DGC) used for gas-liquid and liquid-liquid reactions and gas absorption and effluent treatment (to reduce COD/ BOD). Results of adsorption-separation technology, to remove and recover specific chemicals will be described. Information on a few other new technologies to improve productivity, product quality will be presented. The author will also share some of his own experiences in this area.