

Preface

The management of wastes, in particular of industrial waste, in an economically and environmentally acceptable manner is one of the most critical issues facing modern industry, mainly due to the increased difficulties in properly locating disposal works and complying with even more stringent environmental quality requirements imposed by legislation. The development of innovative systems to maximize recovery of useful materials and/or energy in a sustainable way has become necessary. The significant residual waste streams from pulp and paper mills include wastewater treatment sludges, lime mud, lime slaker grits, green liquor dregs, boiler and furnace ash, scrubber sludges and wood processing residuals. Pulp and paper mill industries are always associated with disposal problem of highly contaminated sludge or bio-solids. In countries with large scale Pulp and paper production, the huge amount of waste generated has prompted the government and industries to find new use of these bio-solids. Paper mill sludges have a net environmental advantage over sewage sludges in that they are nearly pathogen free; handling and use pose lower health risks. Land filling, land application, composting, land-spreading to improve soil fertility, production of ethanol and animal feed, pelletization of sludge, manufacture of building and ceramic materials and lightweight aggregate, landfill cover barrier are among the waste management options studied. The challenge to find efficient methods for firing sludge still exists today and is becoming increasingly important as pulp and paper mill strive to be competitive. So far, incineration has been the primary alternative to landfill. However, incineration is associated with environmental pollution problems. The emission of gaseous NO_x and SO_2 are the major precursors of acid rain. The residue ash contains various toxic metals which need to be landfilled and hence result in ground water contamination. The plastics and glue found in the sludge are the sources of chlorinated compounds such as HCl, dioxins and furans which are major threat to the environment. This book presents general introduction on waste management in pulp and paper industry, generation of waste in pulp and paper mills, waste composition, methods of sludge

pretreatment, processes and technologies for conversion of pulp and paper mill waste into valuable products, state-of the-art waste reduction techniques employed in the pulp and paper industry worldwide and future trends.

Patiala, India
June 2014

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Management of Pulp and Paper Mill Waste

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2015, XIV, 197 p. 14 illus., 13 illus. in color., Hardcover

ISBN: 978-3-319-11787-4