

Enzymatic Deinking Of Old Newsprints Using Cellulase

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ABSTRACT

Use of enzymes has increased in paper technology in the recent past. Application of enzymes in secondary fiber processing is a relatively new field. The use of secondary fiber has increased substantially over the year world wide. It has been accepted widely that for the manufacture of writing and printing papers, flotation deinking gives better results. The pulping for the same is carried out normally in the presence of sodium hydroxide, hydrogen peroxide, sodium silicate, surfactant and some collector chemicals. P.K. Agnihotri et.al(5) had estimated the optimum conditions for operation with ONP, OMG and their blends. In the present work ONP has been exposed for cellulase enzymes for different dosages of enzymes with different temperature and processing intervals. After 11 trials, it has been estimated that the best dosages for enzyme is 0.4ml/100 gm of ONP, 55°C temperature, 30 minute soaking time and 15 minutes pulping time. It was further observed that if the enzyme is washed out after pulping processes, the properties go on changing with time. It was also observed that with the high dosage of enzyme, ink foam disperses out in the pulp suspension and the sheet formed has uniformly dispersed ink particles with dark color. The deinkability factor for the best run is found 74.35% based on ISO Brightness and 93% based on ERIC 950 value.

KEYWORDS: Deinking chemicals, Deinkability factor, Flotation time, Ink agglomerates, ONP.