PITCH CONTROL IN THERMOMECHANICAL PULPING AND PAPERMAKING BY ENZYMATIC TREATMENTS

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Abstract

Colloidal wood resin can become unstable in pulp and papermaking processes forming pitch deposits that affect both runnability and product quality. Enzymatic treatments can degrade triglycerides to fatty acids, which may affect the deposition tendency of the resin. In this paper, the effects of enzymatic treatment of wood resin in TMP were studied using four modified lipases. At 60 degrees C the unmodified Resinase hydrolysed 90% of the triglycerides and reduced the amount of deposit, but the efficiency decreased at higher temperatures. With the most thermostable modified Resinase it was possible to hydrolyse 72% of the triglycerides even at 85 degrees C, which is very important for industrial applications. Despite the efficient enzymatic hydrolysis of the triglycerides, the deposition tendency of the colloidal wood resin was not always reduced.