紙機污染物控制方法的最新發展

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A superior new approach to paper machine contaminant control

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Summary

Chemical methods of wet end contaminant control are frequently used in the paper industry to improve machine productivity and paper quality. Three quite different methods are particularly common: 1)Stabilizing the colloidal material with a dispersant or surfactant. 2)Reducing the tackiness of the colloidal material using a detackifier. 3)Removing the contaminants from the system together with the paper using a highly charged cationic polymer. Traditionally, these three methods have rarely been combined because combining them typically provided few additional benefits and the methods have not been complementary. However, Hercules Incorporated has developed a new approach to controlling contaminants that combines an amphoteric, surface-active, structured protein with a highly charged cationic polymer. The structured protein is able both to increase the stability and to reduce the tackiness of colloidal contaminants. The real key to the effectiveness of the program, however, is the effect achieved when the structured protein is used together with a cationic polymer to retain the contaminants with the web. This approach, which combines three different methods of control, has been shown to be considerably more effective on commercial paper machines than conventional methods.

一、緒言

污染物在造紙流程中係以各種不同的型態存在，有效的清洗及篩選可以除去大部分的污染物。但有些污染物無法藉由清洗及篩選方法完全由系統中除去，這些污染物包括：回收纖維及塗佈損紙中的粘著物、紙漿中的殘留樹脂成分，這些污染物的組成分已經有詳細的記載， 另外亦有許多的報告討論上述污染物所導致紙張品質缺點、產生紙機沈積物及污染紙機毛毯、抄網而使紙機的運轉性惡化及使產量降低等問題。

有效管理系統污染物的第一個步驟爲強化篩選及淨漿系統，儘可能將污染物在形成問題前即可將其由系統中除去，有效的篩選及淨漿處理的另一項功能在於降低污染物的粒徑，此種小粒徑的污染物可穿過篩選及淨漿設備到達紙機系統，但較容易使用化學方法處理。本篇報告並沒有針對篩選或淨漿系統進行討論，內容主要還是在探討漿料的化學處理方法，此種處理會影響到殘留在造紙系統中膠體粒子的表現。