

**THE ADSORPTION OF SURFACTANT ON INKS RELATED TO
PAPER RECYCLING**



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A Thesis Submitted in Partial Fulfilment of the Requirements
for the Degree of Master of Science
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in Academic Partnership with
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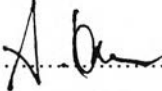
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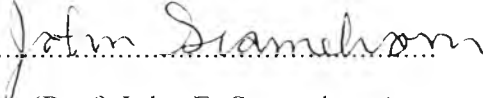
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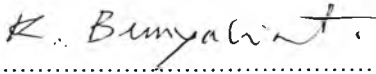
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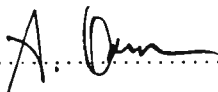

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บทคัดย่อ

ฐิติพงษ์ กรประภากุล : การดูดซับของสารลดแรงตึงผิวบนผิวหมึกสัมพันธ์ต่อกระบวนการรีไซเคิลกระดาษ (The Adsorption of Surfactant on Inks Related to Paper Recycling) อ. ที่ปรึกษา: ศ. จอห์น เอฟ สกemasอน รศ. กัญจนา บุญเกียรติ และ ดร.กิติพัฒน์ สีมานนท์ 60 หน้า ISBN 974-334-159-5

การศึกษาการดูดซับของสารลดแรงตึงผิวที่ระหว่างหน้าของแข็ง-สารละลายเพื่อเข้าใจถึงอันตรกิริยาระหว่างสารลดแรงตึงผิวและพื้นผิวของแข็ง โดยศึกษาอิทธิพลของความเป็นกรด-เบส และความเข้มข้นของเกลือแคลเซียม ต่อการดูดซับของโซเดียมโดเดซิลซัลเฟต (เอสดีเอส) บนพื้นผิวคาร์บอนแบลค ร่วมกับศึกษาการวัดความต่างศักย์อิเล็กโตรโคโนติก ของสารแขวนลอยที่เอสดีเอสดูดซับบนผงคาร์บอนแบลค เพื่อสังเกตความสัมพันธ์ระหว่างความต่างศักย์และการดูดซับ ผลการทดลองแสดงให้เห็นว่า การดูดซับของเอสดีเอสบนพื้นผิวคาร์บอนแบลค แสดงอันตรกิริยาที่ชัดเจนระหว่างกลุ่มหางที่ไม่ชอบน้ำของเอสดีเอส และพื้นผิวคาร์บอนแบลค โครงร่างที่สันนิษฐานได้ของเอสดีเอสที่ดูดซับคือ การจัดเรียงส่วนหางลง และ/หรือนอนราบ และผลของความเป็นกรด-เบสไม่มีผลต่อการดูดซับของเอสดีเอสในขณะที่การเติมเกลือแคลเซียมช่วยเพิ่มการดูดซับเอสดีเอส

ABSTRACT

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Adsorption of surfactant at the solid-aqueous solution interface has been extensively studied to understand interactions between the surfactant and the solid surface. In the present study, the influence of pH and calcium concentration on the adsorption of sodium dodecyl sulfate (SDS) onto carbon black surface was investigated. Measurements of electrokinetic potential of suspensions of SDS-adsorbed carbon black particles were combined in order to monitor the variation in potential as a function of adsorption. The results showed that the adsorption of SDS onto carbon black gave strong interactions between the hydrophobic tail group of SDS and the carbon surface. The presumed configuration of the adsorbed SDS molecule was tail-down and/or laying down orientation. The effect of pH was not found to be significant on the adsorption of SDS while the addition of a calcium salt enhanced SDS adsorption.

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