

**ADSORPTION AND DISPERSION OF TALCUM POWDER IN DIFFERENT
SURFACTANT SOLUTIONS**



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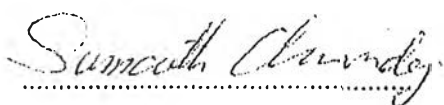
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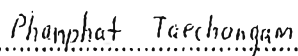


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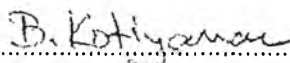
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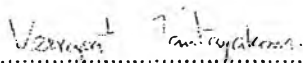
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ABSTRACT

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Sliders used to write and read data from the disk, require extremely low levels of impurities in the manufacturing process. The most common impurity found on the surface of sliders is identified as talcum powder. The dispersion stability is expected that related to prevent redeposition on the surface of slider in cleaning agent. The objective of this work was to investigate the surfactant adsorption and dispersion of talcum powders in different surfactant solutions. Surfactant solutions can enhance the dispersion stability of talcum powder as compared with in absence surfactant. The dispersion stability of talcum powder increased with increasing surfactant concentration. Solution pH at low surfactant concentration affected on dispersion of talcum powder but at high surfactant concentration slightly affected on dispersion. SDS surfactant adsorbed with the highest adsorption density, leading to increase negative electrical zeta potentials that exhibited the highest dispersion stability. Adsorption of CTAB surfactant changed the negative charge surfaces to positive charge surfaces with increase positive electrical zeta potentials that can stabilize talcum powder to disperse. AE7 surfactant adsorbed on talcum powder with the lowest adsorption but the steric effect of surfactant adsorbed on surface can enhance the dispersion stability of talcum powder.

บทคัดย่อ

อารีย์ ปิ่นปิติ : การดูดซับและการกระจายตัวของอนุภาคทัลคัมในสารละลายสารลดแรงตึงผิวที่แตกต่างกัน (Adsorption and Dispersion of Talcum Powder in Different Surfactant Solutions) อ. ที่ปรึกษา : ศ. ดร. สุเมธ ชวเดช และ ดร. แพณภัทร เตชางาม 71 หน้า

หัวอ่านคืออุปกรณ์ที่ใช้ในการอ่านหรือเขียนข้อมูลจากฮาร์ดดิสก์ซึ่งในกระบวนการผลิตหัวอ่านนั้นต้องการปริมาณสิ่งเจือปนต่ำ โดยส่วนใหญ่อนุภาคที่ถูกตรวจพบบนพื้นผิวของหัวอ่านคืออนุภาคทัลคัม การกระจายตัวของอนุภาคคาดว่าเกี่ยวข้องกับการป้องกันการติดลงบนพื้นผิวในสารทำความสะอาด ดังนั้นจุดประสงค์ของงานวิจัยนี้คือ การศึกษาการดูดซับและการกระจายตัวของอนุภาคทัลคัมในสารละลายลดแรงตึงผิวที่แตกต่างกัน จากการศึกษาพบว่าสารลดแรงตึงผิวช่วยเพิ่มความสามารถในการกระจายตัวของอนุภาคทัลคัมเมื่อเปรียบเทียบกับสารละลายที่ไม่มีสารลดแรงตึงผิว การกระจายตัวของอนุภาคเพิ่มขึ้นเมื่อความเข้มข้นของสารลดแรงตึงผิวเพิ่มขึ้น โดยที่ความเข้มข้นต่ำความเป็นกรดเบสของสารละลายไม่มีผลต่อการกระจายตัว แต่ความเป็นกรดเบสมีผลต่อการกระจายตัวที่ความเข้มข้นสูง โซเดียมโดเดซิลซัลเฟต (SDS) ดูดซับบนพื้นผิวมีค่าสูงสุดทำให้เพิ่มความต่างศักย์ที่เป็นลบบนพื้นผิว ซึ่งทำให้เพิ่มการกระจายตัวของอนุภาคได้สูงที่สุด ส่วนการดูดซับของเฮกซะเดคซิลไตรเมทิลแอมโมเนียมโบรไมด์ (CTAB) นั้น ทำให้เปลี่ยนพื้นผิวของอนุภาคที่เป็นลบให้กลายเป็นบวกและเพิ่มความต่างศักย์ที่เป็นบวกบนพื้นผิว ส่งผลทำให้สารลดแรงตึงผิวช่วยในการกระจายตัวของอนุภาคได้ สำหรับแอลกอฮอล์โทกซีเลท (AE7) นั้นดูดซับบนพื้นผิวของอนุภาคมีค่าต่ำสุด แต่ความเกาะเกาะของสารลดแรงตึงผิวที่ดูดซับบนพื้นผิวส่งผลทำให้เกิดการกระจายตัวของอนุภาคทัลคัม

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ABBREVIATIONS

AE7	Alcohol ethoxylate
CTAB	Cetyltrimethy ammonium bromide
SDS	Sodium dodecyl sulfate
NaOH	Sodium hydroxide
HBr	Hydrobromic acid
CMC	Critical micelle concentration