

**CLEAN-UP OF OILY WASTE WATER BY FROTH FLOTATION :
EFFECT OF MICROEMULSION FORMATION BY SURFACTANT
MIXTURES**

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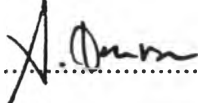
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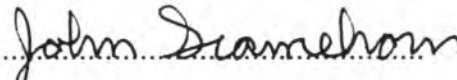
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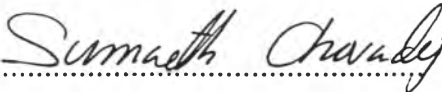


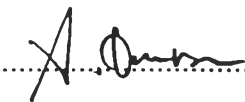
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ABSTRACT

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The mixed surfactants of sodium dodecyl sulfate (SDS) and nonylphenol polyethoxylate (NP(EO)₁₀) were used to prepare the microemulsion solutions between water and σ -dichlorobenzene (ODCB). The formation of microemulsion could move from Winsor's type II to type III by varying the weight fraction of SDS in the system. At the small percentage of surfactants, the Winsor's type III system did not exist. The froth flotation studies were carried out to observe the removal efficiency of ODCB under three types of microemulsion in which 5 and 7 % by weight of surfactants were added. The Winsor's type III system gave a higher percentage of ODCB removal than type II or type I. For the system containing a surfactant concentration of 7 % and a weight fraction of SDS of 0.8, the highest ODCB removal of 91 % corresponding to the surfactant removal of 65 % was obtained.



บทคัดย่อ

เพนนี่ รัตนโรจนธรรม : การทำความสะอาดน้ำเสียที่มีน้ำมันโดยวิธีการทำให้ลอย : ผลของการเกิดไมโครอิมัลชันโดยใช้สารลดแรงตึงผิวผสม (Clean-up of Oily Waste Water by Froth Flotation : Effect of Microemulsion Formation by Surfactant Mixtures) อ. ที่ปรึกษา : ศ.ดร. จอห์น เอฟ สกามาฮอร์น และ ดร.สุเมธ ชวเดช 55 หน้า ISBN 974-636-046-9

น้ำ และ ออร์โธ-ไดคลอโรเบนซีน (ODCB) ถูกทำให้เป็นสารละลายไมโครอิมัลชัน (microemulsion) ได้โดยใช้สารลดแรงตึงผิวผสมระหว่าง โซเดียมโดเดคซิลซัลเฟต(SDS) ร่วมกับโนนิลฟีนอลโพลีเอทิลีนออกไซด์(NP(EO)₁₀) การเปลี่ยนแปลงอัตราส่วนโดยมวลของโซเดียมโดเดคซิลซัลเฟตในระบบทำให้ไมโครอิมัลชันเปลี่ยนจากระบบวินเซอร์ชนิดที่ 2 (Winsor's type II) ไปเป็นชนิดที่ 3 (Winsor's type III) ซึ่งระบบของวินเซอร์ชนิดที่ 3 ไม่เกิดขึ้นถ้า เปอร์เซ็นต์ของสารลดแรงตึงผิวมีค่าต่ำ กระบวนการทำให้ลอย (Froth Flotation) ถูกนำมาศึกษาเพื่อดูประสิทธิภาพในการแยก ออร์โธ-ไดคลอโรเบนซีนจากน้ำภายใต้ ระบบของไมโครอิมัลชันทั้งสามชนิด โดยปริมาณของสารลดแรงตึงผิวที่ใช้เท่ากับ 5 และ 7 เปอร์เซ็นต์โดยน้ำหนัก ระบบวินเซอร์ชนิดที่ 3 นี้ ให้ประสิทธิภาพ การแยกออร์โธ-ไดคลอโรเบนซีน สูงกว่าชนิดที่ 2 และ 1 สำหรับระบบซึ่งมีสารลดแรงตึงผิว 7 เปอร์เซ็นต์ และมีอัตราส่วนมวลของโซเดียมโดเดคซิลซัลเฟตเท่ากับ 0.8 จะได้ประสิทธิภาพการแยกออร์โธ-ไดคลอโรเบนซีนสูงสุดคือ 91 เปอร์เซ็นต์ ซึ่งให้ประสิทธิภาพการแยกสารลดแรงตึงผิวเท่ากับ 65 เปอร์เซ็นต์

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