

**EFFECT OF SECOND SUBSATURATED SURFACTANT SOLUTION
ON CONTACT ANGLE OF SATURATED SURFACTANT SOLUTION
ON PRECIPITATED SURFACTANT SURFACE**

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A Thesis Submitted in Partial Fulfilment of the Requirements
For the Degree of Master of Science
The Petroleum and Petrochemical College, Chulalongkorn University
In Academic Partnership with
The University of Michigan, The University of Oklahoma,
And Case Western Reserve University

2001

ISBN 974-13-0700-4

I 197 37270

Thesis Title : Effect of Second Subsatuated Surfactant Solution on
Contact Angle of Saturated Surfactant Solution on
Precipitated Surfactant Surface

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Accepted by the Petroleum and Petrochemical College, Chulalongkorn
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ABSTRACT

4271016063: PETROCHEMICAL TECHNOLOGY PROGRAM

Piyada Balasuwatthi: Effect of Second Subsaturation Surfactant Solution on Contact Angle of Saturated Surfactant Solution on Precipitated Surfactant Surface. Thesis Advisors: Prof. John F. Scamehorn and Assoc. Prof. Chintana Saiwan, 63 pp ISBN 974-13-0700-4

Keywords: Contact Angle/ Wettability/ Surfactant Precipitate

Contact angles of a saturated surfactant solution containing a second subsaturated surfactant on the precipitate of that surfactant were measured by using the sessile-drop technique to develop a better understanding of the influence of a second subsaturated surfactant on wetting. The surfactants used in this study were calcium dodecanoate (CaC_{12}) and sodium dodecyl sulfate (NaDS). It was found that the contact angles of saturated CaC_{12} solution containing the second subsaturated surfactant (NaDS) decreased with increasing NaDS concentrations until reaching the CMC of the surfactant mixture due to adsorption of surfactant at the solid/liquid and liquid/vapor interfaces. The results show that the second surfactant can act as an effective wetting agent in this saturated surfactant system. Application of Young's equation to contact angles showed that the solid/liquid surface tension could be as important as the liquid/vapor surface tension in reducing contact angles.

บทคัดย่อ

ปิยะดา พลสุวัฒน์: ผลของสารลดแรงตึงผิวชนิดที่สองที่ไม่อิมิตัวต่อมุมสัมผัสของสารละลายของสารลดแรงตึงผิวที่อิมิตัวอยู่บนผิวตะกอนของสารลดแรงตึงผิว (Effect of Second Subsaturated Surfactant Solution on Contact Angle of Saturated Surfactant Solution on Precipitated Surfactant Surface.) อ. ที่ปรึกษา : ศาสตราจารย์ จอห์น เอฟ สเคมีฮอร์น และ รองศาสตราจารย์ จินตนา สายวรรณ 63 หน้า ISBN 974-13-0700-4

ในการศึกษานี้ใช้วิธีเซสไซส์-ดริอ์ฟเพื่อวัดมุมสัมผัสของสารละลายสารลดแรงตึงผิวอิมิตัวซึ่งประกอบด้วยสารละลายสารลดแรงตึงผิวชนิดที่สองที่ไม่อิมิตัวบนพื้นผิวตะกอนของสารลดแรงตึงผิวชนิดแรกเพื่อพัฒนาความรู้เรื่องอิทธิพลของสารละลายไม่อิมิตัวของสารลดแรงตึงผิวชนิดที่สองต่อการเปียกโดยใช้แคลเซียมโคเดคาโนเอตและโซเดียมโคเดซิลซัลเฟตในการทดลอง จากผลการทดลองพบว่ามุมสัมผัสของสารละลายอิมิตัวของแคลเซียมโคเดคาโนเอตซึ่งมีโซเดียมโคเดซิลซัลเฟตเป็นสารละลายไม่อิมิตัวลดลงอย่างมากเมื่อเพิ่มความเข้มข้นของโซเดียมโคเดซิลซัลเฟตจนถึงซีเอ็มซีของสารผสมของสารลดแรงตึงผิวเนื่องจากการดูดซับของสารลดแรงตึงผิวบนรอยต่อระหว่างของแข็ง/ของเหลวและของเหลว/ไอ ผลการทดลองนี้ยืนยันได้ว่าสารละลายไม่อิมิตัวของสารลดแรงตึงผิวสามารถทำหน้าที่เป็นสารให้ความเปียกของระบบนี้ การประยุกต์สมการของยังเข้ากับมุมสัมผัสแสดงให้เห็นว่าแรงตึงผิวระหว่างของแข็ง/ของเหลวมีความสำคัญเท่าเทียมกับแรงตึงผิวระหว่างของเหลว/ไอในการลดมุมสัมผัส

ACKNOWLEDGEMENTS

This work has been a very memorable and enjoyable experience. It would not be successful without the assistance of the following people.

The first thanks go to Professor John F. Scamehorn who enrolled this interesting topic and is my US advisor. It has been a privilege to work with such a dedicated and resourceful person.

Assoc. Prof. Chintana Saiwan is my Thai-Advisor. I would like to express my deepest gratitude to her for providing useful comments, professional suggestions, and encouragement throughout the course of my work. This thesis would not be completed without her consistent help.

I would like to thank Dr. Pomthong Malakul for being the thesis committee.

Unforgettable appreciation goes forward to the Petroleum and Petrochemical College staff members for their help, especially Mr. Prasit Srikaew and Mr. Suchart Thongkum for taking the photographs.

I deeply indebted to Petroleum and Petrochemical College for giving me a great opportunity and the scholarship throughout the course of my study.

I would like to express my whole-hearted gratitude to my family for their endless love, encouragement, and measureless support.

Finally, I wish to extend my thanks to all of my friends for their friendly help, creative suggestions, and encouragement throughout this two-year study period.

TABLE OF CONTENTS

	PAGE
Title Page	i
Abstract (in English)	iii
Abstract (in Thai)	iv
Acknowledgements	v
Table of Contents	vi
List of Tables	x
List of Figures	xiv
 CHAPTER	
I INTRODUCTION	1
 II LITERATURE SURVEY	
2.1 Structure and Behaviour of Surfactants	3
2.2 Definition and Classification of Contact Angle	4
2.3 Contact Angle Measurement	6
2.4 Wetting and Its Modification by Surfactant	7
2.5 Factors Affecting Contact Angle and Wettability	9
2.6 Adsorption Isotherm of Surfactant	11
2.7 Adsorption of Surfactants at Solid/Liquid Interface	13
2.8 Applications and Related Works	14
2.9 Phase Boundary and Precipitation	16
 III EXPERIMENTAL	
3.1 Materials	18
3.1.1 Surfactants	18

CHAPTER	PAGE
3.1.2 Fatty Acids	18
3.1.3 Reagents	18
3.1.4 Water	18
3.2 Methodology	19
3.2.1 Preparation of Calcium Soap Precipitate	19
3.2.2 Saturated Solution Preparation	19
3.2.3 Surfactant Mixture Preparation	19
3.2.4 Solid Sample Preparation	19
3.2.5 Contact Angle Measurement	20
3.2.6 Surface Tension Measurement (ASTM D 1331-89)	21
3.2.7 Adsorption Measurement	22
3.2.8 Analysis	22
 IV RESULTS AND DISCUSSION	 23
4.1 Results	23
4.1.1 Kinetics of Wetting	23
4.1.2 The Contact Angle	24
4.1.3 The Liquid/Vapor Surface Tension	24
4.1.4 Adsorption of Subsaturated Surfactant onto Precipitated Surfactant	25
4.1.5 Calculation of Solid/Liquid Surface Tension	26
4.2 Discussion	29
 V CONCLUSIONS AND RECOMMENDATIONS	 32

CHAPTER	PAGE
REFERENCES	33
APPENDICES	39
CURRICULUM VITAE	63

LIST OF TABLES

TABLE		PAGE
A1	The advancing contact angle of saturated CaC_{12} solution containing NaDS at $[\text{NaDS}] = 0$ mM, solution volume =20 mL	39
A2	The advancing contact angle of saturated CaC_{12} solution containing NaDS at $[\text{NaDS}] = 5$ mM, solution volume =20 mL	39
A3	The advancing contact angle of saturated CaC_{12} solution containing NaDS at $[\text{NaDS}] = 10$ mM, solution volume =20 mL	40
A4	The advancing contact angle of saturated CaC_{12} solution containing NaDS at $[\text{NaDS}] = 100$ mM, solution volume =20 mL	40
B1	The contact angle of saturated CaC_{12} containing NaDS. $[\text{NaDS}] = 0$	41
B2	The contact angle of saturated CaC_{12} containing NaDS. $[\text{NaDS}] = 0.5$	41
B3	The contact angle of saturated CaC_{12} containing NaDS. $[\text{NaDS}] = 1.0$	42
B4	The contact angle of saturated CaC_{12} containing NaDS. $[\text{NaDS}] = 1.5$	42
B5	The contact angle of saturated CaC_{12} containing NaDS. $[\text{NaDS}] = 2.0$	43
B6	The contact angle of saturated CaC_{12} containing NaDS. $[\text{NaDS}] = 2.5$	43

TABLE**PAGE**

B7	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 3.0	44
B8	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 3.5	44
B9	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 4.0	45
B10	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 4.5	45
B11	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 5.0	46
B12	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 5.5	46
B13	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 6.0	47
B14	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 6.5	47
B15	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 7.0	48
B16	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 7.5	48
B17	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 8.0	49
B18	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 8.5	49
B19	The contact angle of saturated CaC ₁₂ containing NaDS. [NaDS] = 9.0	50

TABLE**PAGE**

E2	The reduction of solid/liquid surface tension as a function of NaDS concentration and NaDS adsorption	62
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LIST OF FIGURES

FIGURE	PAGE
2.1 The Micellization process	3
2.2 Contact angles for nonwetting, partial wetting, and Wetting (Lange, 1994)	4
2.3 Surfactant alignment in a vapor/liquid/solid system	8
2.4 Typical surfactant adsorption isotherm (Rosen, 1989)	12
2.5 Schematic of Equilibrium existing in system (Rodriguez et al., 1998)	16
3.1 The sessile-drop contact angle method: θ is contact angle, γ_{SV} , γ_{SL} , and γ_{LV} are solid-vapor, solid-liquid, and liquid-vapor interfacial tensions, respectively	21
4.1 Advancing contact angle of saturated CaC_2 solution containing NaDS as a function of time, (\blacklozenge) 0 mM, (\bullet) 5 mM, (\blacktriangle) 10 mM, and (\blacksquare) 100 mM at 30 °C	23
4.2 The advancing contact angles of saturated CaC_2 solution with varying NaDS concentrations	24
4.3 Liquid/vapor surface tension as a function of NaDS concentration, pure NaDS (\blacksquare) and mixed solution of saturated CaC_2 and NaDS (\blacklozenge)	25
4.4 Adsorption of NaDS onto CaC_2 precipitate	26
4.5 The contact angle as related to liquid/vapor surface tension (γ_{LV}) of mixed solution of saturated CaC_2 and NaDS	27
4.6 The reduction of solid/liquid surface tension of Mixed solution of CaC_2 and NaDS as a function of	

FIGURE	PAGE
NaDS concentrations	28
4.7 The reduction of solid/liquid surface tension of Mixed solution of CaC ₁₂ and NaDS as a function of NaDS adsorption	28