

FOAMING OF ANIONIC SURFACTANT SYSTEM WITH SOAP

M.L. Luesak Chakrabandhu

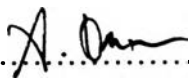
A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science
The Petroleum and Petrochemical College, Chulalongkorn University
in Academic Partnership with
The University of Michigan, The University of Oklahoma,
and Case Western Reserve University

1999

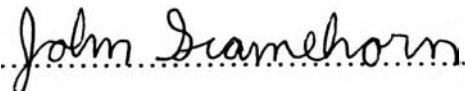
ISBN 974-331-898-4

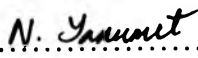
Thesis Title : Foaming of Anionic Surfactant System with Soap
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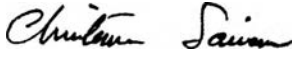
Accepted by the Petroleum and Petrochemical College, Chulalongkorn University, in partial fulfillment of the requirements for the Degree of Master of Science.

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ABSTRACT

##4071010063 : PETROCHEMICAL TECHNOLOGY PROGRAM

KEY WORDS : Foam / Antifoam / SDS / Sodium octanoate / Supernatant
/ Soap

Luesak Chakrabandhu: Foaming of Anionic Surfactant System with Soap. Thesis Advisors: Prof. John F. Scamehorn and Dr. Nantaya Yanumet 53 pp ISBN 974-331-898-4

Foam height and foam stability of solutions containing mixtures of synthetic anionic surfactant, soap and calcium ion were measured at 30 °C and constant pH of 7 by Ross-Miles test which is a standard test for studying foamability and foam stability. Sodium dodecyl sulfate (SDS) was chosen as the anionic surfactant and sodium octanoate (SO) was used as the soap in this system. The concentrations of mixtures of SDS, soap and calcium ion were varied alternatively in order to investigate effects of soap, calcium ion, calcium precipitate of soap, calcium precipitate of SDS on SDS foams. The results from experiments of SDS/SO mixtures show no significant effect of soap on foamability and foam stability of SDS.

Based on the mixed SDS/SO-calcium precipitation boundary, the experimental observations agree with the theoretical prediction that solid particles, in this case calcium precipitate of SDS, can act as antifoam. However, the results of calcium ion/SO mixed system show no antifoaming property of calcium precipitate of soap.

บทคัดย่อ

ถือศักดิ์ จักรพันธุ์ : การเกิดฟองในระบบที่มีสารลดแรงตึงผิวประจุลบและสบู่ (Foaming of Anionic Surfactant System with Soap) อ.ที่ปรึกษา ศ. จอห์น เอฟ สเคมีฮอร์น (Prof. John F. Scemehorn) และ ดร.นันทยา ขานูเมศ 53 หน้า, ISBN 974-331-898-4

ในงานวิจัยนี้ ได้มีการศึกษาความสูงฟองและความเสถียรฟองของสารละลายผสมระหว่างสารลดแรงตึงผิวที่มีประจุลบกับสบู่ โดยการวัดด้วยวิธีของรอส-ไมล์ ซึ่งเป็นวิธีมาตรฐานสำหรับศึกษาการเกิดฟองและความเสถียรของฟองของสารลดแรงตึงผิว ในการทดลองนี้ได้ทำที่อุณหภูมิคงที่ที่ 30°C และค่าความเป็นกรด-เบสคงที่ที่ 7 สารลดแรงตึงผิวที่มีประจุลบที่ใช้คือ โซเดียมโคเดซิลซัลเฟต ส่วนสบู่ใช้โซเดียมออกตาโนเอต โดยมีแคลเซียมคลอไรด์ เป็นตัวให้อนุภาคประจุบวก ในการทดลอง ได้มีการแปรค่าของค่าความเข้มข้นของสารลดแรงตึงผิวที่มีประจุลบ สบู่ และประจุบวกของแคลเซียม เพื่อศึกษาผลของสบู่ ตะกอนของสบู่ และตะกอนโซเดียมโคเดซิลซัลเฟตต่อการเกิดฟองในระบบ ผลการทดลองพบว่าสบู่ในระบบไม่ได้ส่งผลกระทบต่อทั้งความสูงและความเสถียรของฟอง ในส่วนของผลกระทบจากการเกิดตะกอนของสารผสม พบว่าตะกอนโซเดียมโคเดซิลซัลเฟตมีผลในการยับยั้งการเกิดฟอง แต่ไม่พบคุณสมบัติดังกล่าวในกรณีตะกอนสบู่

ACKNOWLEDGMENTS

I am grateful to my advisors Prof. Dr. John F. Scamehorn and Dr. Nantaya Yanumet for their kindness, helpful guidance, suggestions and constant encouragement throughout this graduate work. I also would like to thank Asst.Prof. Chintana Saiwan who is on my thesis committee and who has taught me many things about how to work and think.

Unforgettable thanks are also for all professors who taught me and helped to establish the knowledge used in this work through their courses. I am also greatly indebted to the teachers and all of the staff of the Petroleum and Petrochemical College who contributed in various degrees to the success of this thesis work.

I wish to express my special thanks to Malee who gave me theoretical supports for very long time and to Piyapon who gave me technical supports.

I particularly thank Chavalit, Athapol, Sutha, and Sawad for being in the same team and being there for me. I wish to thank Prapas, Ratchadaporn, Chalernpol and Duc for their comments, suggestions, and helps in everything. All of them are so important to me in finishing this work happily.

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

Thanks with my deepest love to my younger sister, the only one who is with me always.

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