

2018 AOCs Annual Meeting & Expo

May 6–9 | Minneapolis Convention Center | Minneapolis, Minnesota, USA



Surfactants and Detergents (S&D) Interest Area Tentative Technical Program

As of March 12, 2018

This presentation list is not final and is subject to change.

The presenter is the first author, or the author indicated with an asterisk ().*

Monday Afternoon

S&D 1: Home Care and Laundry Performance Boosters and New Benefits

Chairs: Michael Williams, Evonik, USA; and Stephen Gross, BASF Corporation, USA

A Rapid Screen to a Dispersion Builder System. Fred Holzhauer, *Univar USA, USA*

Formulating Liquid Detergents with Improved Enzyme Stability. Eric Dodge¹, and Arjen J. Hoekstra², ¹*DuPont Industrial Biosciences, USA;* ²*DuPont Industrial Biosciences, The Netherlands*

Cationic Inulin, A Novel Biopolymer for Home and Fabric Care. Robert Nolles, *Cosun Biobased Products, USA*

Improving Color and Fabric Care in Fabric Softeners. David Joiner, and Nathan Reese*, *Novozymes, USA*

Study on the Comfort Created by Fabric Softener. Sae Kumagami, Emiko Hashimoto, Eiji Ogura, Yoshiko Ito, and Takahiro Okamoto, *Lion Corporation, Japan*

New ADW Formulation Opportunities with Improved Polyitaconate Polymers. Jim W. Gordon, *Itaconix, USA*

High Performing Rinse Aid Surfactant for Plastics. Ashish Taneja, *BASF Corporation, USA*

Re-thinking Value-tier Formulations – New Technologies to Boost Performance. Ann Lee, and David Joiner, *Novozymes North America, Inc., USA*

S&D 1.1a: New Technologies in Industry

Chairs: Eric Theiner, Evonik, USA; and Hongwei Shen, Colgate Palmolive Co., USA

NINOL® CAA: A Novel Multifunctional Amide for Mass Efficient Formulation. Ron A. Masters, Sarah Kovach, Anatoly Dameshek, Renata Butikas, and Scott Dillavou, *Stapan Company, USA*

New and Unique Biorenewable Hydrophobes for Surfactants. Risha Bond, *REG Life Sciences, USA*

Rheology Modifiers in Personal Cleansing Applications: Recent Trends. Martin S. Vethamuthu, *Ashland Specialty Ingredients G.P., USA*

A Novel Amphoteric Surfactant for Personal and Home Care. Marcie Anne Natale and Neil Boaz, *Eastman, USA*

Structure-property Relationships of Co-solvents and Co-surfactants in Microemulsion Formation Using High Throughput Techniques. Troy Knight, Neeraj Rohillia*¹, Pramod Patil¹, Carol Mohler¹, Christopher Nelson¹, Tom Kalantar¹, Pete Rozowski¹, and Quoc Nguyen², ¹*The Dow Chemical Company, USA*; ²*The University of Texas at Austin, USA*

S&D 1.1b: Manufacturing, Commercialization and Delivery of Raw Materials and Finished Products

Chairs: Troy Graham, LightBox Laboratories, LLC, USA; and Sukhwan Soontravanich, Ecolab, USA

Phase-stable Surfactant-thickened Formulations at High Caustic Levels. Daniela Fritter, *The Clorox Company, USA*

Preservation: Finished Goods and Manufacturing. Vidya Ananth and Mrudula Srikanth, *Clorox, USA*

Screening and Scaling Liquid-to-Solid Conversions for Efficient Process Development of Solid Products. Steve D. Rowley, *Division by Zero Labs, USA*

Tuesday Morning

S&D 2: New Technologies for Cold Water Laundry Detergency

Chairs: Rajan Panandiker, Procter and Gamble Company, USA; and Paul Sharko, Shell Global Solutions, Inc., USA

The Fundamentals of Low-Temperature Laundry: Property Control of Grease. Bernhard von Vacano¹, Matthias Kellermeier², Juergen G. Tropsch², and Keith E. Gutowski¹, ¹*BASF Corporation, USA*; ²*BASF SE, Germany*

Detergent Compositions Containing a Branched Surfactant for Cleaning Laundry in Cold Water. Phillip K. Vinson and Patrick Stenger, ¹*The Procter & Gamble Co., USA*

Detergent Amylases for Cleaning at Low Temperature. Iben Damager, *Novozymes A/S, Denmark*

Delivering Effective Bleaching under Low Wash Temperatures. Jane Mathews¹, Jenny Wilkinson¹, and Smita Brijmohan*², ¹*Lubrizol Corporation, United Kingdom*; ²*Lubrizol Corporation, USA*

The Effect of Surfactant and Additives on Cold Water Detergency of Semi-solid Soil. Parichat Phaodee and David A. Sabatini, *University of Oklahoma, USA*

Laundry Detergency of Solid Non-Particulate Soil or Waxy Solids: Effect of Surfactant Type. David A. Sabatini¹, Jarussri Chanwattanakit², John Scamehorn¹, and Sumaeth Chavadej², ¹*University of Oklahoma, USA*; ²*Chulalongkorn University, Thailand*

Microbes in Your Laundry: Does Washing on "Cold" Make a Difference? Darci L. Ferrer, *American Cleaning Institute, USA*

Study on Bacteria Flora to Prevent Fabric Odors. Keisuke Mori, Nanami Sasaki, Takahiro Hayashi, Hiroyuki Masui, and Takahiro Okamoto, *Lion Corporation, Japan*

Tuesday Afternoon

S&D 3a: Surfactants in Agricultural Applications / General Surfactants

Chairs: Michael Tate, The Dow Chemical Company, USA; and Ryan Totten, Stepan Co., USA

Compatibility Agents for Complex Tank Mix Systems. Jacob P. Bell, Julia A. Sheehan and Kelly Buchek, *Stepan Company, USA*

Fundamentals of Multi-Surfactant/Solvent/Water Phase Behavior in Agricultural Applications Using High Throughput Techniques. Michael Tate, Laura Havens, Matthew Benedict, Thomas Boomgaard, Jeff Michalowski, Matt Entorf, Romain Britton, and Bethany Karl, *The Dow Chemical Company, USA*

Adjuvant Use for Crop Protection Products. Douglas J. Linscott, Madan M. Somasi, Hongyoung Jeon, and Suresh B. Annangudi Palani, *DowAgroSciences, LLC, USA*

Structured Surfactants as Rheology Modifiers for Electrolyte Systems. Kelly Buchek, Elodie Shaw, and Ryan Totten*, *Stepan Company, USA*

S&D 3b: General Surfactants

Chairs: Robert Coots, Colonial Chemical, USA; and Erika Szekeres, Method, USA

Virtual Detergency Experimentation. Rodrigo J. Olmedo and Nicolas A. Olmedo, *CONSUMERTEC, Ecuador*

Characteristic Curvature of Ether Carboxylate Surfactants and Contribution of Functional Groups. Thu Nguyen and Carla Morgan, *Sasol Performance Chemicals, USA*

Thickener for Cationic Disinfectant-based Formulations. Grace N. Mahfouz, Smita Brijmohan, Mark Paczkowski, and Chris Belock, *The Lubrizol Corporation, USA*

Surface Activity of Plant Oil-based Monomers in Emulsion Copolymerization. Kyle Kingsley¹, Vasylyna Kirianchuk², Oleh Shevchuk¹, and Andriy Voronov¹, ¹*North Dakota State University, USA;* ²*Lviv Polytechnic National University, Ukraine*

S&D 3.1: Surfactants and Additives in Enhanced Oil Recovery and Oilfield Applications

Chairs: Upali Weerasooriya, University of Texas, Harcros Chemicals & Ultimate EOR Services, USA; and Jeffrey Harwell, University of Oklahoma, USA

A Novel Microfluidic Platform to Measure Dynamic Interfacial Tensions at Short Time Scales. Sachin Goel¹, Samson Ng², Edgar Acosta³, and Arun Ramchandran³, ¹*Dept. of Chemical Engineering and Applied Chemistry, University of Toronto, Canada;* ²*Syncrude Canada Limited, Canada;* ³*University of Toronto, Canada*

Quantitative Crude Oil Demulsification Analysis Using Multiple Light Scattering. Matt Vanden Eynden¹, Christelle Tisserand², Yoann Lefeuvre², Pascal Bru², and Gerard Meunier², ¹*Formulaction, Inc., USA;* ²*Formulaction, France*

Novel Surfactants for Chemical Enhanced Oil Recovery. Himanshu Sharma¹, Krishna Panthi¹, Pinaki Ghosh¹, Upali P. Weerasooriya², and Kishore K. Mohanty¹, ¹*The University of Texas at Austin, USA;* ⁴*University of Texas, Harcros Chemicals & Ultimate EOR Services, USA*

Comprehensive Evaluation of Scleroglucan Biopolymer for EOR under Harsh Reservoir Conditions. Mohannad Kadhum, Tryg Jensen, Briana Kozlowicz, Eric S. Sumner, Jeffrey Malsam, and Ramakrishna Ravikiran, *Cargill, USA*

Oil Compatible Cylindrical Micelles at a Very Wide Range of Temperatures and Salinities. Krishna Panthi¹, Himanshu Sharma¹, Upali P. Weerasooriya², and Kishore K. Mohanty¹, ¹*University of Texas at Austin, USA*; ²*University of Texas, Harcros Chemicals & Ultimate EOR Services, USA*

Amido-Amine Based Surfactants: Synthesis, Characterization, and Physico-Chemical Investigation for Enhanced Oil Recovery in Carbonate Reservoirs. Syed S. Hussain¹, and Muhammad Sha Kamal², ¹*King Fahd University of Petroleum and Minerals, Saudi Arabia*; ²*KFUPM, Saudi Arabia*

Surfactants as Steam Foam Additives for Thermal EOR Processes. Thu Nguyen¹, Ajay Raj¹, and Jorge M. Fernandez², ¹*Sasol Performance Chemicals, USA*; ²*Sasol North America, USA*

The Ultra-low IFT Behavior and Mechanism of a Novel Combined Cationic/Anionic-nonionic Gemini Surfactants System for Chemical Flooding. Haishun Feng¹, Jirui Hou¹, Liming Zhang¹, Zhe Li¹, Wanli Kang³, and Hairong Wu¹, ¹*China University of Petroleum (Beijing), China*; ²*China University of Petroleum (East China), China*

Use of Carbonaceous Nanoparticles as Surfactant Carrier in Crude Oil Recovery: Part I. Laboratory Study. Changlong Chen, Ben Shiau, and Jeffrey Harwell, *University of Oklahoma, USA*

Wednesday Morning

BIO 4.1 / S&D 4.1: Biosurfactants and Additives

Chairs: Daniel Solaiman, USDA, ARS, ERRC, USA; and George A. Smith, Huntsman Corporation, USA

Expanding the Commercial Biosurfactant Portfolio: A Journey Guided by the Application of a Rationalized Integrated Bioprocess Design Approach. Lisa Van Renterghem¹, Sophie L.K.W. Roelants¹, Romain Bordes², Niki Baccile³, Karel De Schampelaere⁴, Monica Höfte⁵, Bernd Everaert⁶, Sofie Demaeseneire¹, and Wim Soetaert⁷, ¹*Ghent University, Belgium*; ²*Chalmers University of Technology, Sweden*; ³*Chimie de la Matière Condensée de Paris, Université Pierre et Marie Curie, France*; ⁴*Environmental Toxicology Unit, Ghent University, Belgium*; ⁵*Phytopathology Unit, Ghent University, Belgium*; ⁶*Bio Base Europe Pilot Plant, Belgium*; ⁷*Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium*

Glycolipid Biosurfactants: Characteristic Curvature and Applications in Microemulsions and Emulsions. Zheng Xue, Dennis Parrish, Eric Theiner, Khalil Yacoub, Andras Nagy¹ and Terrence Everson, *Evonik Corporation, USA*;

Glucamide Surfactants: Structural and Interfacial Aspects. Brajesh Jha, *Colgate Palmolive, USA*

NMR Investigation of the Effect of pH on Micelle Formation by an Amino Acid-based Surfactant. Kevin F. Morris¹, Gabriel Rothbauer¹, Elisabeth Rutter¹, Chelsea Reuter-Seng¹, Simon Vera², Eugene Billiot², Yayin Fang³, and Fereshteh Billiot², ¹*Carthage College, USA*; ²*Texas A&M Corpus Christi, USA*; ³*Howard University, USA*

Effects of Rhamnolipid on Phagotrophic Algae as Sensitive Ecologically Important Model Organism. Krutika Invally, Suo Xiao, and Lu-Kwang Ju*, *University of Akron, USA*

Application of Sophorolipids in Control of Food Pathogens. Daniel K.Y. Solaiman, Richard D. Ashby, Xuetong Fan, and Modesto Olanya, *USDA, ARS, ERRC, USA*

The Stability of Nanoemulsions and Emulsions Containing Cinnamaldehyde and Biosurfactants, and their Antimicrobial Performance against Escherichia. coli O157:H7 and Listeria Monocytogenes. Kangzi Ren and Buddhi Lamsal, *Iowa State University, USA*

Unique Characteristics of Sophorolipid, Yeast Glycolipid Biosurfactants, and its Application as Eco-friendly Bio-detergents. Yoshihiko Hirata, Glen Lelyn Quan, Michiaki Araki, and Mizuyuki Ryu, *Saraya, Japan*

Microbial Glycolipid Biosurfactants: Understanding Self-Assembly to Make Soft Functional Materials. Niki Baccile¹, Ghazi Ben Messaoud², Sophie LKW Roelants³, Chris V. Stevens⁴, Elisabeth Delbeke⁴, Lisa Van Renterghem⁵, Guylaine Ducouret⁶, and Daniel Hermida-Merino⁷, ¹*Chimie de la Matière Condensée de Paris, Université Pierre et Marie Curie, France*; ²*Sorbonne Université, France*; ³*Bio Base Europe Pilot Plant, Belgium*; ⁴*University of Ghent, Belgium*; ⁵*Ghent University, Belgium*; ⁶*ESPCI, France*; ⁷*ESRF synchrotron, France*

Applisurf: Functionality Driven Design and Synthesis of New-to-Nature Glycolipid Biosurfactants. Sophie L.K.W. Roelants¹, Sofie Demaeseneire², and Wim Soetaert³, ¹*Bio Base Europe Pilot Plant, Belgium*; ²*Ghent University, Belgium*; ³*Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium*

Next Generation Castor Oil Ethoxylates. Ollie James, Dustin Landry, Liam McMillan, and George Smith, *Sasol North America, USA*

Wednesday Afternoon

S&D 5: Surfactant Synthesis and Fundamental Properties

Chairs: Ron Masters, Stepan Company, USA; and Michael Miguez, Shell Global Solutions, Inc., USA

Alkyldimethyl Amine Oxides – Determination of pKa and Elucidation of Micelle Structure with FT-IR Spectroscopy. David Scheuing, *Clorox, USA*

2-phenyl or Not 2-phenyl: The Secret Life of Linear Alkylbenzene Sulfonate. George A. Smith, *Sasol North America, USA*

Solving a Hard Problem: Oleofuran Surfactants for Hundredfold Improved Hard Water Stability. Christoph Krumm¹, Kristeen Joseph², Dae Sung Park², and Paul J. Dauenhauer², ¹*Sironix Renewables, USA*; ²*University of Minnesota, USA*

New Methyl Ester Ethoxylate Derived from C18 Fraction of Palm Oil for Liquid Laundry Detergent. Akinori Joko, Yuka Morimoto, Yukihiko Kaneko, and Norio Tabori, *Lion Corporation, Japan*

Low Foaming Nonionic Surfactants with High Bio-Based Content. Scott Jaynes, *Croda, Inc., USA*

Force Mapping and Characterization of Surfactant Adsorbed on Flat and Patterned Surfaces. Joshua J. Hamon¹, Rico Tabor², Brian P. Grady¹, and Alberto Striolo³, ¹*University of Oklahoma, USA*; ²*Monash University, USA*; ³*University College London, United Kingdom*

Foam Properties of Alcohol Ethoxylates, Ether Sulfates and Ether Carboxylates. Tamra Weemes¹, Thu Nguyen¹, and Jamie Thibodeaux², ¹*Sasol Performance Chemicals, USA*; ²*Sasol (USA) Corporation*

New Surfactants: Gemini and Microbial Type. Sunil S. Bhagwat, *Institute of Chemical Technology, Deemed University, India*

EAT 5.1 / S&D 5.1: Complex Phenomena at Interfaces

Chairs: Sam Adamy, Church & Dwight Co. Inc., USA; and Ozan Ciftci, University of Nebraska-Lincoln, USA

Complex Interfaces: Role in Foam and Emulsion Behavior of Rinse-off Cosmetics. Edward DiAntonio¹, Hani Fares¹, Martin S. Vethamuthu*¹, and Seher Ozkan², ¹Ashland Specialty Ingredients G.P., USA; ²Ashland Specialty Ingredients, USA

Effect of Emulsifiers on the Interfacial Tension of Fat-reduced W/O Emulsions Added with a High Behenic Stabilizer. Marisol Cordoba-Barragan¹, Jaime D. Pérez-Martínez¹, and Elena Dibildox Alvarado², ¹Lab. Biopolímeros Alimentarios, Facultad de Ciencias Químicas, Universidad Autónoma de San Luis Potosí, Mexico; ²Universidad Autónoma de San Luis Potosí, Mexico

Interaction and Synergism in Surfactant/Water Soluble Polymer Solutions in Boosting Foaming Performance in Home, Personal Care Formulations. Manilal Dahanayake¹ and Milton J. Rosen², ¹Surfactant Solution Experts LLC, USA; ²Surfactant Research Institute, USA

Preparation of Novel Food Emulsifier using Amino Acids and Partial Glycerides. Mahua Ghosh and Sriparna Chakraborty, University of Calcutta, India

Surfactant Effects on Fat Crystallization at the Oil-water Interface. Nicole Green¹, Stephen R. Euston², and Déric Rousseau¹, ¹Ryerson University, Canada; ²Heriot-Watt University, United Kingdom

Characterizing Adsorption Kinetics and Wetting Behavior of Polyelectrolyte Complexes (PECs). Claire Dentinger and David Scheuing, Clorox, USA

Physical Modification of Faba Bean Proteins Significantly Improves Interfacial and Emulsifying Properties of O/W Emulsions. Yan Ran Tang, and Supratim Ghosh*, University of Saskatchewan, Canada

Crystal-melt Interfacial Energy Effects on the Surface Nucleation of Triglycerides. Alejandro G. Marangoni, University of Guelph, Canada

S&D-P Surfactants and Detergents Poster Session

Chairs: Mike Wint, Amway Corporation, USA

Fragrance Influence on Stability for Fabric Care Applications. Matt Vanden Eynden¹, Christelle Tisserand², Yoann Lefeuvre², Pascal Bru², and Gerard Meunier², ¹Formulation, Inc., USA; ²Formulation, France

Investigating the Effects of Controlled Lateral Confinement Width and Surface Chemistry on Surfactant Adsorption onto Silica using AFM. Joshua J. Hamon¹, Brian P. Grady¹, Alberto Striolo², and Rico Tabor³, ¹University of Oklahoma, USA; ²University College London, United Kingdom; ³Monash University, USA

A New Approach to Measure the Adsorption Density of Surfactant on Carbonate Rock Using TOC Analysis. Muhammad Sha Kamal*¹, and Abdullah S. Sultan², ¹KFUPM, Saudi Arabia; ²King Fahd University of Petroleum and Minerals, Saudi Arabia

Cationic Polyacrylamide/Cationic Gemini Surfactants Hybrid Material for Enhanced Oil Recovery in Carbonate Reservoirs. Muhammad Sha Kamal*¹, and Syed S. Hussain², ¹KFUPM, Saudi Arabia; ²King Fahd University of Petroleum and Minerals, Saudi Arabia

Amide Types of Chemocleavable Surfactants Bearing a 1,3-Dioxolane Ring Derived from Diethyl Tartrate. Makoto Okumura¹, Daisuke Ono*², Shintaro Kawano³, Hirofumi Sato³, Motohiro Shizuma³, and Araki

Masuyama¹, ¹*Osaka Institute of Technology, Japan*; ²*Osaka Research Institute of Industrial Science and Technology, Japan*; ³*Osaka Municipal Technical Research Institute, Japan*

Novel Phosphate Ester Replacement for C8-C10 Linear Alkyl Phosphate Esters. Ryan C. Vikan, and Philip C. Benes*, *Nease Co., USA*

Formaldehyde Free Microencapsulates Improve Detergent Fragrance Delivery. Terry Crutcher, *Ashland Specialty Ingredients G.P., USA*

Continuous Production of Sugar Fatty Acid Ester from 100% Biorenewable Materials using Heterogeneous Resin Catalyst. Tomone Sasayama¹ and Naomi Shibasaki-Kitakawa², ¹*Dept. of Chemical Engineering, Tohoku University, Japan*; ²*Tohoku University, Japan*