



2017 AOCS Annual Meeting and Industry Showcases

April 30–May 3 | Rosen Shingle Creek | Orlando, Florida, USA

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

This list of presentations is not final and subject to change.

Surfactants and Detergents 2018 Session Planning Roundtable

Monday, May 1 at 12:45 pm

All meeting attendees are invited to attend Roundtable discussions and assist in developing the technical program for the 2018 AOCS Annual Meeting. AOCS and the Annual Meeting Program Committee greatly value your input! *Division membership is not required to participate.*

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

Monday Afternoon

S&D 1: Fabric Care Performance Boosters and New Benefits

Chairs: Kathleen Stanton, American Cleaning Institute, USA; and Pan Pan, Arkema Inc., USA

Rational Design of Lipases: A Case Study. Jakob Skjold-Jørgensen, Novozymes A/S, Denmark

Engineering an Improved Cellulase for Fabric Care in Liquid Detergents. Christian Adams¹, Andre Krouwer², and Arjen J. Hoekstra², ¹DuPont Industrial Biosciences, USA; ²DuPont Industrial Biosciences, The Netherlands

Breakthrough Solution for Odor Reduction in Cleaning Products. Anita Augustyniak and Yvon G. Durant, Itaconix, USA

Study on Bacterial Control During Washing with Laundry Detergent. Nanami Sasaki, Keisuke Mori, Takahiro Hayashi, Misa Nakagawa, Masayoshi Oishi, Hiroaki Shindo, Hiroyuki Masui, and Takahiro Okamoto, Lion Corporation, Japan

Laundry Detergency of Solid Non-particulate Soil or Waxy Solids: Relation to Oily Soil Removal Above the Melting Point. David A. Sabatini¹, John Scamehorn¹, Jarussri Chanwattanakit², and Sumaeth Chavadej², ¹University of Oklahoma, USA; ²Chulalongkorn University, Thailand

Polymers and Detergency—A Complex Game of Interactions. Keith E. Gutowski¹, and Dieter Boeckh^{*2}, ¹BASF Corporation, USA; ²BASF SE, Germany

Protect and Care—Silicone Effects for Perceivable Benefits. John H. Richards, Wacker Chemical Corporation, USA

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S&D 1.1: New Technologies in Industry

Chairs: Eric Theiner, Air Products & Chemicals Inc., USA; and Hongwei Shen, Colgate-Palmolive Company, USA

Surface Restoration Achieved Using STEPOSOL® CITRI-MET via Partial Softening and Cure of Existing Polymer Coatings. Ron A. Masters, Stepan Company, USA

Viscosity Control for Vesicle Suspension System with Non-adsorbed Polymer. Ryo Inoue¹, Asami Miyajima¹, Taku Ogura¹, Otto Glatter², and Norio Tobori¹, ¹Lion Corporation, Japan; ²University of Graz, Austria

Potential of Biosurfactants as New Performance Ingredients in Liquid Laundry. Alexander Schulz and Michael Dreja, Henkel AG & Co. KGaA, Germany

Elucidation of Softening Mechanism in Rinse Cycle Fabric Softeners. Takako Igarashi, Kao Corporation, Japan

Development of a Spherulite Structured Liquid Cleanser at Reduced Surfactant Concentrations. Peter R. Hilliard, Colgate Palmolive Co., USA

Noverite™ Polymers for Window and Bathroom Cleaners: Improved Anti-fog, Reduced Hard Water Spotting, and Easier Soap Scum Removal. Jobiah J. Sabelko, Chris Cypcar, and Eve De Maesschalck, Lubrizol Advanced Materials, Inc., USA

Hydrotroping Properties of Naturally-derived Surfactants in Alkaline Formulations. Robert J. Coots, and Dennis Abbeduto, Colonial Chemical, Inc., USA

Tuesday Morning

S&D 2: New Trends in Cleaning: Hard Surface, Detergency, Hand Dish, and Autodish

Chairs: Paul Sharko, Shell Global Solutions, Inc., USA; and Masaki Tsumadori, Kao Corporation, Japan

Improving Hand Dishwashing Liquid Cleaning Performance with Enzymes. Lotte J. Jensen-Holm¹, and Thomas J. Burns*², ¹Novozymes A/S, Denmark; ²Novozymes North America, Inc., USA

Glucamides—Versatile Sugar Surfactants for Sustainable Cleaning of Hard Surfaces. Carsten Cohrs, Florian Schinle, Gabi Ohlendorf, and Christine Müller, Clariant, Germany

Novel Dishwashing Process Converting Fatty Soil into Surfactant. Kagaya Mariko and Takaya Sakai, Kao Corporation, Japan

Increasing the Performance of Automatic Dishwashing with Enzymes. Lotte J. Jensen-Holm¹, Thomas J. Burns², and Roberta Mustacchi¹, ¹Novozymes A/S, Denmark; ²Novozymes North America, Inc., USA

Cracking the Code for Spotless Dishes. Peter Miller and Keith E. Gutowski, BASF Corporation, USA

Future Trends in Auto-dish Wash Detergents. Graham Sorrie, Procter and Gamble, UK

***In situ* Monitoring of Soil Removal Processes from Hard Surfaces Using Quartz Crystal Microbalance Technique.** Yu Kanasaki¹, Yasuyuki Kobayashi², and Keiko Gotoh³, ¹Nara Women's University, Japan; ²Osaka Municipal Technical Research Institute, Japan; ³National Institute of Technology, Nara College, Japan

Silicone-free Rubber and Plastic Dressing for Enhanced Carwashing. Danielle Goodwin and Dave McCall*, Madonna University, USA

Methane Sulfonic Acid and Methylglycinediacetic Acid Benefits in Acidic Bathroom Cleaning Formulations. Kevin M. Salmon and Stephen F. Gross, BASF Corporation, USA

Spontaneously-generated Peeling of Keratin Grime from Hard Surfaces by the Effects of Permeation, Chelation, and Swelling. Yosuke Watanabe, Asako Kawasaki, Yukihiro Kaneko, and Ryoji Yasue, Lion Corporation, Japan

S&D 2.1: General Surfactants

Chairs: Sanja Natali, Halliburton, USA; and Phillip Vinson, Procter & Gamble Co., USA

A New Approach to Developing Surfactants Soluble in Highly Alkaline Systems. Renae Bennett¹, Eric Theiner², Khalil Yacoub¹, Brian Smith¹, and Larry Meyers¹, ¹Air Products and Chemicals, Inc., USA; ²Air Products & Chemicals Inc., Air Products & Chemicals Inc., USA

Assessment of Narcotic-like Effects of Surfactants Using a Larval Zebrafish Neurobehavioral Assay. Harry W. Broening¹, Lisa Truong², Jane K. La Du², Greg J. Carr¹, J.F. Nash¹, George P. Daston¹, and Robert L. Tanguay², ¹The Procter & Gamble Co., USA; ²Oregon State University, USA

Counterion Binding on Coacervation of Dioctyl Sulfosuccinate in Aqueous Sodium Chloride. Shengbo Wang, Changlong Chen, Ben Shiau, and Jeffrey Harwell, University of Oklahoma, USA

Salt-viscosity Response of Alcohol Ethoxylate/Alcohol Ethoxylate Sulfate in Solutions and in Liquid Laundry Detergents. Thu Nguyen, Christian Jones, and Tamra Weemes, Sasol Performance Chemicals, USA

Self-shaping Drops: From Formation Mechanisms to Potential Applications. Diana P. Cholakova¹, Nikolai D. Denkov², Slavka S. Tcholakova², Ivan I. Lesov², and Stoyan K. Smoukov³, ¹Sofia University, Bulgaria; ²Dept. of Chemical and Pharmaceutical Engineering Faculty of Chemistry and Pharmacy, Sofia University, Bulgaria; ³Dept. of Materials Science and Metallurgy, University of Cambridge, UK

Synthesis of Isomerically Pure 2-Phenyl Linear Alkyl Benzene Sulfonates. Richard L. Pederson, Materia Inc., USA

The Effect of Regular Surface Patterning on Surfactant Adsorption. Brian P. Grady and Joshua J. Hamon, University of Oklahoma, USA

Rheology Modifications for Functional Markets. David R. Allen, Aaron W. Sanders, Elodie Shaw, Ginger Wren, Dawn Friesen, Eric Weber, and Kelly Buchek, Stepan Company, USA

Development and Characterization of a New Class of Castor Oil Ethoxylates. Cornell Stanciu, Jorge M. Fernandez, and Ning Xie, Sasol North America, USA

The Effect of Small Molecules on Cetylpyridinium Chloride's Behavior in Solution and at Interface. Hongwei Shen*¹, Chi-Yuan Cheng², Kevin Chi², Donghui Wu², Venda P. Maloney², and Ravi Subramanyam², ¹Colgate-Palmolive Company, Colgate Palmolive Co., USA; ²Colgate Palmolive Co., USA

Tuesday Afternoon

S&D 3: Journal of Surfactants and Detergents—20th Volume Celebration Honoring Milton Rosen

This session is sponsored in part by Springer.

Chairs: Dennis Murphy, Stepan Co., USA; and Arun Ramchandran, University of Toronto, Canada

Gemini Surfactants Based on Linear Alkylbenzene Sulfonate for Use in Liquid Laundry Detergents. George A. Smith, Huntsman Corporation, USA

Silicone Surfactants in Oil Based Systems. Tony O'Lenick, *Siltech LLC, USA*

Synergism and Interaction of Surfactants in Enhancing Performance in Personal Care and Industrial Formulations. Manilal Dahanayake, Surfactant Solution Experts. LLC, USA

Surfactant Mixtures: Synergism in Solubilization, Microemulsions, and Detergency. David A. Sabatini, University of Oklahoma, USA

Surfactant-polymer Interaction. Yun-Peng Zhu, Lubrizol Advanced Materials, Inc., USA

Improve Low Tension Formulation Robustness in Enhanced Oil Recovery with Properly Optimized Surfactant Mixture. Jean-Louis Salager*, and Ana M. Forgiarini, Universidad de Los Andes, Venezuela

Accounting for Ion Specific Effects in the Hydrophilic/Lipophilic Difference (HLD) Equation. Brock A. Trotter¹, Mohannad Kadhum¹, Ben Shiau², and Jeffrey Harwell¹, ¹University of Oklahoma, USA; ²University of Oklahoma, University of Oklahoma, USA

Use of High Throughput Technologies to Accelerate Formulation Development. Christopher J. Tucker, Michael Tate, and John Ell, The Dow Chemical Company, USA

Samuel Rosen, Milton Rosen, and Visions of a Future Honoring a Legacy. Charles Hammond, Flotek Chemistry, USA

S&D 3.1: New Encapsulation and Delivery Systems

Chairs: Sam Adamy, Church & Dwight Co. Inc., USA; and Michael Miguez, Shell Global Solutions, Inc., USA

HLD-based Method to Customize Lecithin-linker SMEDS Delivery Systems. Mehdi Nouraei and Edgar Acosta, University of Toronto, Canada

Study of Fragrance Bloom, Release, and Retention on Substrate from Surfactant-rich Cosmetics. Martin S. Vethamuthu, Sergio Lira, Edward DiAntonio, and Hani Fares, Ashland Specialty Ingredients G.P., USA

Microencapsulation. Robert S. Bobnock, Encapsys, USA

Waterborne Silicone Delivery. Brett L. Zimmerman¹, and Leon Marteaux², ¹Dow Performance Silicones, USA; ²Dow Performance Silicones, Belgium

Delivery Systems in Detergent Products. Johan Smets, The Procter & Gamble Co., USA

Dual Action Malodor Benefit Capsules for Enhanced Freshness. Evan Beach*, Ron Gabbard, Yabin Lei, Sean Wetterer, and Li Xu, International Flavors & Fragrances Inc., USA

Bicontinuous Microemulsions: Potentially Robust Delivery Systems for Melittin and Other Biomembrane-associated Peptides and Proteins. Douglas G. Hayes*¹, Ran Ye¹, Rachel N. Dunlap¹, Divina B. Anunciado², S. Venkatesh Pingali², Hugh M. O'Neill², and Volker S. Urban², ¹University of Tennessee, USA; ²Oak Ridge National Laboratory, USA

Wednesday Morning

S&D 4: Chemicals and Surfactants in Enhanced Oil Recovery (EOR)

This session is sponsored in part by Harcros Chemicals.

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

Enhanced Oil Recovery via Targeted Emulsified Solvent Injection (TESI). Aurelio Stammitti and Edgar Acosta, University of Toronto, Canada

Synergistic Effect of Mixed Alkoxylate Sulfates for Crude Oil Interfacial Tension Reduction and Solubilization. Thu Nguyen¹, Christian Jones¹, and Greg Trahan², ¹Sasol Performance Chemicals, USA; ²Sasol North America, USA

A Novel Approach to Determine HLD Parameters Demonstrated with Internal Olefin Sulfonates. Chien-Yuan Su¹, Ben Shiau², and Jeffrey Harwell², ¹Institute of Applied Surfactant Research, University of Oklahoma, USA; ²University of Oklahoma, USA

Oil-induced Formation of Wormlike Micelles and Their Use in Nanoparticle Stabilization. Francis Choi and Edgar Acosta, University of Toronto, Canada

Interaction of Alkalis with Acidic Crude Oils. Himanshu Sharma¹, Krishna Panthi¹, Jun Lu², Upali Weerasooriya³, Gary A. Pope¹, and Kishore K. Mohanty¹, ¹University of Texas at Austin, USA; ²University of Tulsa, USA; ³University of Texas, Harcros Chemicals & Ultimate EOR Services, USA

Enhancing Foam Stability in Porous Media by Applying Nanoparticles. Shengbo Wang, Changlong Chen, Mohammad Kadhum, Ben Shiau, and Jeffrey Harwell, University of Oklahoma, USA

Synthesis and Surface Properties of Surfactants for Oilfield Applications. Syed S. Hussain, Muhammad Shahzad Kamal, and Abdullah S. Sultan, King Fahd University of Petroleum and Minerals, Saudi Arabia

Solid-Liquid-Liquid Wettability and Its Prediction with Surface Free Energy Models. Aurelio Stammitti and Edgar Acosta, University of Toronto, Canada

Static Adsorption Study of Alcohol Propoxy Sulfate Surfactants onto Crushed Berea Sandstone. Daniel F. Wilson, Laurie A. Poindexter, and Greg Trahan, Sasol North America, USA

A Novel Microfluidic Platform to Measure the Dissolution Rate of Drops Emulsified in an Immiscible, Surfactant-containing Suspending Medium. Sachin Goel¹, Samson Ng², and Arun Ramchandran³, ¹Dept. of Chemical Engineering and Applied Chemistry, University of Toronto, Canada; ²Syncrude Canada Limited, Canada; ³University of Toronto, Canada

BIO 4.1 / S&D 4.1: Biosurfactants, Bio-derived Surfactants, and Biodetergents

Chairs: Heather Byrne, Huntsman Performance Products, USA; Douglas Hayes, University of Tennessee, USA; and Daniel Solaiman, USDA, ARS, ERRC, USA

Tailoring of Mannosylerythritol Lipids by Pseudozyma Species Using Different Renewable Feedstocks. Susanne Zibek, Fraunhofer IGB Institute for Interfacial Engineering and Biotechnology, Germany

Integrated Bioprocess Design for the Production of Tailor-made Glycolipids Using *Starmerella bombicola*: Promising Results from Application Testing. Lisa Van Renterghem¹, Sophie L.K.W. Roelants¹, Niki Baccile², Karel De Schampelaere³, Quinten Christiaens⁴, Stijn Verweire⁴, and Wim Soetaert⁴, ¹Ghent University, Belgium; ²Chimie de la Matière Condensée de Paris, Université Pierre et Marie Curie, France; ³Environmental Toxicology Unit, Ghent University, Belgium; ⁴Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium

Microbial Biosurfactants, from Lab to Market: Hurdles and How to Take Them. Sophie L.K.W. Roelants¹, Bernd Everaert¹, Emile Redant¹, Brecht Vanlerberghe¹, and Wim Soetaert², ¹Bio Base Europe Pilot Plant, Belgium; ²Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium

Sophorolipids in Hard Surface Cleaning Applications. Zheng Xue, Dennis Parrish, Jeff Davidson, Samuel Christy, Andras Nagy, Miyako Hisamoto, and Terrence Everson, Evonik Corporation, USA

Sophorolipid Biosurfactant Against Bacteria Relevant to Tooth Caries and Skin Hygiene. Daniel K.Y. Solaiman¹, Richard D. Ashby¹, Joseph Uknalis², Aixing Fan³, and Laurence Du-Thumm³, ¹USDA, ARS, ERRC, USA; ²USDA, ARS, ERRCA, USA; ³Colgate Palmolive Co., USA

A Journey to Standardization of Bio-based Surfactants in Europe. Juergen G. Tropsch¹, Christophe Sené², Thierry Beaudouin², Stephen Mudge³, and Horacio Hormazabal⁴, ¹BASF SE, Germany; ²Stepan, France; ³BSI, UK; ⁴AFNOR, France

Oil Seed-extracted Oleosome Emulsifiers for Sun Protection Products. Soo In Yang¹, Shuanghui Liu¹, Geoffrey Brooks¹, Yves Lanctot¹, and James V. Gruber², ¹Botaneco Inc., Canada; ²Botaneco Inc., USA

The Antibacterial Property of Fatty Acyl Glutamic Acid and Proposed Mechanism. Buddhi Lamsal and Kangzi Ren, Iowa State University, USA

Triglyceride Derived Surfactants and Interesterification: Synthesis and Performance Properties. Heather E. Byrne¹, George A. Smith², and Angela Garibay-Lewis², ¹Huntsman Performance Products, USA; ²Huntsman Corporation, USA

Wednesday Afternoon

S&D 5: Foam Boosting and Control

Chairs: Warren Schmidt, Consultant, USA; and Martin Severance, Dow Corning Corporation, USA

Mechanism of Action of Silicone-based Foam Control Agents. Jacqueline L'hostis, Chamee Chao, and Stéphanie Lobry, Dow Corning, Belgium

Nonionic Surfactant Foam Control Technology for HE Laundry. Michael D. Capracotta, Shakera Thamanna, Kevin M. Salmon, and Stephen F. Gross, BASF Corporation, USA

High Performance Surfactant Blends with High Bio-based Content. Scott Jaynes, Croda Inc., USA

Driving Foam Performance with Surfactant Interactions. Eric Theiner and Renae Bennett, Air Products & Chemicals Inc., USA

Foam Optimization Strategies in Various Consumer Relevant Applications. Shui P. Zhu, and Sangeeta Ganguly-Mink, Stepan Company, USA

S&D 5.1: Sustainability in Surfactants, Polymers, and Detergent Chemicals

Chairs: Troy Graham, LightBox Laboratories, LLC, USA; and Keith Genco, Arkema Inc., USA

The Unbeatable Beet: The Power of Microcellulosic Fibers Unraveled. Robert Nolles, Cosun Biobased Products, USA

Co-valorisation of Palm Oil Processing By-products as Soaps. Teerasak Punvichai, Prince of Songkla University, Thailand

Sustainable Suds Manufacturing. Kaj A. Johnson, People Against Dirty (Method/Ecover), USA

Readily Biodegradable Builders—Selecting the Right One(s). James N. LePage, Kuntal Chatterjee, Patrick Kincaid, and Jeanne-Marie McVeigh, AkzoNobel, USA

How to Improve the Long Term Performance of Autodish Washer Formulations. Yvon G. Durant¹, and David A. Pears², ¹Itaconix, USA; ²Revolymex, UK

Dispersants for Reduction of Spotting in Automatic Dishwashing. Paul P. Mercado¹, Eric P. Wasserman¹, Severine S. Ferrieux², and Scott A. Backer*¹, ¹The Dow Chemical Company, USA; ²The Dow Chemical Company, France

Advancing Sustainable Chemistry: Chemical Footprint Reduction at GOJO. Antonio Quinones, GOJO Industries, USA

Formulation Challenges Faced in the Development of Products for the Natural Category. Katrina J. Martin, SC Johnson, USA

EAT 5 / S&D 5.2: Interfacial Phenomena in Complex Food Systems

Chairs: Nitin Nitin, University of California, Davis, USA; and Ozan Ciftci, University of Nebraska-Lincoln, USA

In situ Observation of Template Effects of Emulsifiers with Different Fatty Acid Moieties. Chinami Ishibashi¹, Hondoh Hironori², and Satoru Ueno², ¹Hiroshima University, Japan; ²Graduate School of Biosphere Science, Hiroshima University, Japan

The Effect of Interfaces in Nanodroplets Loaded With Nutraceuticals on Their Release from Drinks to Human System. Nissim Garti, Hebrew University, Israel

Effect of Membrane-associated Peptide on the Dynamics of Bicontinuous Microemulsions via Quasi-elastic Neutron Scattering and Neutron Spin-echo. Douglas G. Hayes¹, Veerendra K. Sharma², Volker S. Urban², Hugh M. O'Neill², S. Venkatesh Pingali², Michael E. Ohi², Eugene Mamatov², and Madhusudan Tyagi³, ¹University of Tennessee, USA; ²Oak Ridge National Laboratory, USA; ³National Institute of Standards and Technology, USA

Thermodynamics and Adsorption Mechanisms for Hydrophobic Food Surfactants at Interfaces. Stephanie R. Dungan, University of California, Davis, USA

An In-depth Look at Bakery Applications of a Structured Monoglyceride Gel. Alejandro G. Marangoni¹ and Kaustuv Bhattacharya^{*2}, ¹University of Guelph, Canada; ²DuPont Nutrition & Biosciences ApS, Denmark

Improve Foam Properties—Multifunctional Cellulose Polymer. Terry Crutcher^{*1}, and Bert Kroon², ¹Ashland Specialty Ingredients G.P., USA; ²Ashland Specialty Ingredients, The Netherlands

S&D-P: Surfactants and Detergents Poster Session

Chair: Mike Wint, Amway Corporation, USA

Dedicated Poster Session | Visit with the authors.

Monday, May 1 ▪ 5:00–6:30 pm

***Posters will be available for viewing from Monday at 7:30 am until Wednesday at 3:00 pm.*

High Foaming, Bleach Stable Surfactant Alternative to Laurylamine Oxide. Benjamin J. Markovitz, Ryan C. Vikan, Tenu A. Adeosun, William B. Hehemann, and Philip C. Benes, Nease Co., USA

Selective Synthesis of Sugar Mono Fatty Acid Ester Using Ion-exchange Resin as Catalyst. Tomone Sasayama¹, Yuto Kamikanda², and Naomi Shibasaki-Kitakawa³, ¹Dept. of Chemical Engineering, Tohoku University, Japan; ²Tohoku University, Japan; ³Graduate School of Engineering, Tohoku University, Japan

Synthesis of Mild Natural Micro Beads Face Scrubber. Rohan S. Mestri, Harshada S. Patil, and Amit P. Pratap, Institute of Chemical Technology, India

Manufacturing of Detergent Tablet. Rohan S. Mestri, Institute of Chemical Technology, India

Application of Surfactants in Enhanced Oil Recovery. Muhammad Shahzad Kamal, Syed S. Hussain, and Abdullah S. Sultan, King Fahd University of Petroleum and Minerals, Saudi Arabia

Termogravimetric and Rheological Evaluation of Mucilage Flax with Potential Application in Microencapsulation of Bioactives Substances. Jaime Reyes Hernandez^{*}, Concepción Lopez Padilla, Josefina Gallegos Martinez, and Paola Algara Suarez, Universidad Autónoma de San Luis Potosí, Mexico

Chemocleavable Nonionic Surfactants Bearing Mono-dispersed Polyethylene Glycol Derived from Diethyl Tartrate. Daisuke Ono¹, Makoto Okumura², Shintaro Kawano¹, Hirofumi Sato¹, Motohiro Shizuma¹, and Araki Masuyama², ¹Osaka Municipal Technical Research Institute, Japan; ²Osaka Institute of Technology, Japan

Studies on Dispersion of Various Size of Ethyl Cellulose in Colloidal Solution and Their Foam Ability. Hongche Noh, Hanyang University, South Korea

Micellization and Aggregation Properties of Sodium Perfluoropolyether Carboxylate in Aqueous Solution.

Guoyong Wang and Tao Gen*, China Research Institute of Daily Chemical Industry, China

Salt-thickening Effect in the Quaternary Ammonium/Carboxylate Surfactants Mixtures by Forming Entangled

Wormlike Micelles. Liming Zhang*, Wanli Kang, Derong Xu, Meng Yang, Qiong Zhou, Jiatong Jiang, and Hairong

Wu, China University of Petroleum (Beijing), China

Extraction of Essential Oils from Lemon Peels with Micellar Solutions of Food-grade Surfactants. Li-Yi Huang,

Alice P. Yang, and Bing-Hung Chen*, National Cheng Kung University, Taiwan