



Membrane/Separation Technology & Evaporator/Dryer in Dairy Foods Processing Workshop

Day 1

Time	Topic	Speakers
9:00am	Coffee & Registration	Kimberly Bukowski Tristan Zuber
9:30am	Introduction <ul style="list-style-type: none"> • Meet other attendees • Introduction to dairy ingredients 	Tristan Zuber Cornell, University
10:15am	Filtration / Separation Technology and Terminology <ul style="list-style-type: none"> • History and Development • Filtration separation properties and Terminology • Fouling during membrane filtration • Basic equations 	Dave Barbano, PhD Cornell University
11:15am	Break	
11:30am	Polymeric Spiral Wound RO & NF Membranes <ul style="list-style-type: none"> • Construction • Critical areas in the manufacturing • New Membrane Innovations 	Derek Hibbard – Market Manager Koch Membrane Systems, Inc
12:30pm	Lunch	
1:30pm	Polymeric Spiral Wound UF & MF Membranes <ul style="list-style-type: none"> • Construction • Applications in Dairy • New Membrane Innovations 	Jeffery Yeh, President Synder Filtration
2:15pm	Polymeric Filtration Equipment Design <ul style="list-style-type: none"> • System design and controls • Different staging and diafiltration approaches • System Hydraulic (Cross flow & Pressure) 	Gerold Luss, PhD Luss Consulting
3:00pm	Break	
3:15pm	Ultrafiltration <ul style="list-style-type: none"> • Applications in Dairy • Mass balance (WPC&MPC) versus actual yield • How to measure system performance and Protein losses? 	RJ Twiford Tetra Pak/Filtration Engineering
4:00pm	Ceramic Microfiltration Membranes <ul style="list-style-type: none"> • Applications in Dairy • Microfiltration for separation of caseins and whey proteins • Microfiltration for bacterial removal 	Bob Tyler, General Sales Manager Pall Corporation
5:00pm	Adjourn	

5:30 PM: Cocktail hour & Dinner sponsored by Hydrite Chemical



Day 2

Time	Topic	Speakers
8:15am	Analytical methods for control of the composition of membrane filtration products. <ul style="list-style-type: none"> • Chemical and instrumental methods. 	Dave Barbano, PhD Cornell University
9:00am	Sensory Characteristics of Dry Dairy Ingredients <ul style="list-style-type: none"> • Bleaching, Drying & Storage • Finished product impact 	MaryAnne Drake, PhD North Carolina State University
10:15am	Membrane Filtration for the Production of Fresh, Cultured Dairy products <ul style="list-style-type: none"> • Process and process variables • Filtration vs. Centrifugation • Commercial & Technical drivers 	Bruce Blanchard, National Sales Manager GEA Filtration
11:00am	Break	
11:15am	Membrane Cleaning Fundamentals <ul style="list-style-type: none"> • Basic Cleaning Principles • Selecting the right chemistry • Avoiding common mistakes • Improving cleaning performance 	Reda Yacoub & Felicity Plansky Hydrite Chemical Company
12:00pm	Membrane Care Program <ul style="list-style-type: none"> • Successful Cleaning Program • Measuring Performance during CIP • Monitoring CIP data • Membrane system audit • Trouble Shooting 	Reda Yacoub & Felicity Plansky Hydrite Chemical Company
12:45pm	Lunch	
1:30	Evaporators <ul style="list-style-type: none"> • Evaporation concept • Basic Design 	Liam Dunne, Senior Process Engineer for Evaporation RELCO, LLC
2:30	Break	
2:45pm	Dryers <ul style="list-style-type: none"> • Types of dryers • Process design • Product Specific process design 	Steve Wright, Powder Technology Manager GEA/ Niro
3:30pm	Break	
3:45	Critical Points Dryers & Evaporators	Justin Larsen, Director of Quality Assurance Dairy Farmers of America
4:45	Adjourn	



Day 3

Time	Topic	Speakers
8:15am	Cleaning and Troubleshooting Dryers & Evaporators	David Bethke Manufacturing Manager Grande Custom Ingredients
9:15am	Break	
9:30am	Dry Cleaning Programs	Leo Bohanon Hydrite Chemical Company
10:00am	Spores & Dairy Ingredients <ul style="list-style-type: none">• Spore sources• Complications• Ways to reduce or eliminate spores	Martin Wiedmann, PhD Cornell University
11:00am	Break	
11:15am	Current Research Topics in Dry Dairy Ingredients <ul style="list-style-type: none">• Caseinates• Product applications	Carmen Moraru, PhD Cornell University
12:00pm	Questions & Comments	
12:15pm	Lunch	
12:30	Test, Evaluations & Adjourn	