

FREUND INC.

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2026

## IN-PERSON TECHNICAL SEMINAR...

Focusing on Granulation & Coating Technologies

A comparison overview of the fundamental concepts and properties of fluid bed granulation and coating, high shear wet granulation, roll compaction dry granulation, tablet pan coating and spray drying will be presented and demonstrated.

 **FREUND**



# COMPANY OVERVIEW

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## FREUND Inc.

Since 1964, the FREUND Group has been a global leader driving innovation in powder and solid material processing. From pharmaceutical, nutraceuticals, food and beverage, industrial, and energy, our solutions power the world's leading products.

We specialize in granulation, drying, coating, layering, instantizing, and more—with equipment ranging from coating pans and fluid beds to high shear granulators, roll compactors, spray dryers and powder handling.

FREUND Inc's unique in-house research laboratory accommodates multiple lab-to-pilot and production scale equipment offering customers specialized solutions in:

- ✓ Process Evaluation
- ✓ Process Development
- ✓ Process Optimization
- ✓ Process Scale-Up
- ✓ Process Troubleshooting
- ✓ Product Development
- ✓ Product Evaluation
- ✓ Product Feasibility Testing
- ✓ Formulation Assistance
- ✓ Technology Transfer
- ✓ Training



# AGENDA

## DAY ONE: TUESDAY

Lectures		
8:00 am - 8:05 am	Welcome	<i>Greg Smith/Mitch Crawford</i>
8:05 am - 8:30 am	Technology Overview	<i>Mitch Crawford</i>
8:30 am - 9:00 am	Dynamic Image Analysis: Particle Size and Shape	<i>Alan Pieper, Sympatec</i>
9:00 am - 9:45 am	Roll Compaction Technology: Dry Granulation	<i>Tim Smith</i>
9:45 am - 10:15 am	High Shear Technology: Wet Granulation & Milling	<i>Jack Kenny</i>
10:15 am - 10:30 am	Break	
10:30 am - 11:00 am	Fluid Bed Technology: Top Spray Granulation	<i>Jordan Teska</i>
11:00 am - 11:45 am	Fluid Bed Technology: GXR Rotor Processor	<i>Maren Treat</i>
11:45 am - 12:45 pm	Catered Lunch	
Labs		
12:45 pm - 4:15 pm (2 Rotations)	Roll Compaction: Dry Granulation	<i>Tim Smith</i>
	High Shear Wet Granulation	<i>Jack Kenny</i>
	Fluid Bed: Top Spray Granulation	<i>Jordan Teska</i>
	Fluid Bed: Rotor Powder Layering	<i>Maren Treat</i>
4:15 pm	Wrap Up/Leave for Hotel	
6:30 pm	Dinner (TBD)	

## DAY TWO: WEDNESDAY

Labs		
8:00 am - 11:30 am (2 Rotations)	Roll Compaction: Dry Granulation	<i>Tim Smith</i>
	High Shear Wet Granulation	<i>Jack Kenny</i>
	Fluid Bed: Top Spray Granulation	<i>Jordan Teska</i>
	Fluid Bed: Rotor Powder Layering	<i>Maren Treat</i>
Lectures		
11:30 am - 12:15 pm	Tableting	<i>Randy Jung, Natoli Engineering</i>
12:15 pm - 1:30 pm	Catered Lunch/Tour	
1:30 pm - 2:00 pm	Fluid Bed: Wurster (Bottom) Spray Coating	<i>Jack Kenny</i>
2:00 pm - 2:45 pm	Tablet Pan Coating	<i>Maren Treat</i>
2:45 pm - 3:00 pm	Break	
3:00 pm - 3:30 pm	Spray Drying Technology	<i>Cara Lawless</i>
3:30 pm - 4:15 pm	Equipment and Process Troubleshooting	<i>Mitch Crawford</i>
4:15 pm	Wrap Up/Leave for Hotel	
6:00 pm	Dinner at Kingstons Restaurant	

# AGENDA

## DAY THREE: THURSDAY

Labs		
8:00 am - 11:30 am (2 Rotations)	Tableting	<i>Randy Jung, Natoli Engineering</i>
	Fluid Bed: Wurster Coating	<i>Jack Kenny</i>
	Pan Coating	<i>Shawn Engels</i>
	Spray Drying	<i>Cara Lawless</i>
11:30 am - 12:30 pm	Catered Lunch	
12:30 pm - 4:00 pm (2 Rotations)	Tableting	<i>Randy Jung, Natoli Engineering</i>
	Fluid Bed: Wurster Coating	<i>Jack Kenny</i>
	Pan Coating	<i>Shawn Engels</i>
	Spray Drying	<i>Cara Lawless</i>
4:00 pm	Seminar Complete	



# LIST OF PRESENTERS

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## **Mitch Crawford**

*Lab Manager*

[mitch.crawford@freundglobal.com](mailto:mitch.crawford@freundglobal.com)

Mitch has been with FREUND Inc. since 2012. He graduated from Iowa State University with a BS in Mechanical Engineering and started working for FREUND as a Technical Service Engineer. He joined the lab in 2018 and worked on many customer projects as well as R&D efforts, including four AAPS posters. In 2023 he became the laboratory manager.



## **Tim Smith**

*Senior Process Development Scientist*

[tim.smith@freundglobal.com](mailto:tim.smith@freundglobal.com)

Tim has been involved with the design and development of equipment and processes for the pharmaceutical, food, confectionary, energy, aerospace, computer, aseptic, and natural resource industries for over 40 years. Tim has worked in university and corporate settings as a research and development engineer, process application engineer, project manager, and is currently a process development scientist at FREUND Inc. Tim participates in university and industry seminars/webinars, poster presentations at AAPS, and has written a book chapter and trade journal articles in order to share his processing experiences. Tim has a BS in Chemical Engineering and a MS in Food Science from Iowa State University.



## **Maren Treat**

*Technical Sales Manager*

[maren.treat@freundglobal.com](mailto:maren.treat@freundglobal.com)

Maren graduated from Luther College in 2021 with a BA in Biology and Chemistry and completed a postgraduate program in Medical Laboratory Science at Allen College. Her contributions at FREUND include an accepted abstract at AAPS and participation in two patent filings. Maren is passionate about research and development and is dedicated to supporting customers through every stage of their projects, from feasibility testing to process optimization and scale-up.



## **Jordan Teska**

*Process Development Scientist*

[jordan.teska@freundglobal.com](mailto:jordan.teska@freundglobal.com)

Jordan has been with FREUND Inc. since June of 2023. He recently graduated from Iowa State University with a BS in chemical engineering and started working at FREUND Inc. directly after graduating as a process development scientist. He has learned a lot about the different processes and assisted with customers both in the lab and on the road at process sights to help develop and troubleshoot their processes.



## **Jack Kenny**

*Process Development Scientist*

[jack.kenny@freundglobal.com](mailto:jack.kenny@freundglobal.com)

Jack has been with FREUND Inc. since June of 2024. He graduated from Iowa State University with a BS in chemical engineering. Since starting in the lab, he has worked on a multitude of processes. Over the years, Jack has worked with customers both in the lab and at process sites, collaborated on R&D projects, and helped troubleshoot customer processes.

# LIST OF PRESENTERS

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## **Cara Lawless**

*Process Development Scientist*  
[cara.lawless@freundglobal.com](mailto:cara.lawless@freundglobal.com)

After completing two internships at FREUND, Cara has joined as a process development scientist following her graduation from Iowa State University with a BS in chemical engineering. During her internships, she has assisted on a variety of R&D and customer projects. She is passionate about research and development and looks forward to expanding her knowledge of processes and prioritizing strong customer support throughout their development.



## **Shawn Engels**

Colorcon  
*Area Technical Manager*  
[sengels@colorcon.com](mailto:sengels@colorcon.com)

Shawn Engels is an Area Technical Manager for Colorcon®, covering most of the Midwest. In his role, he provides technical assistance for Colorcon's coating and formulation products as well as process assistance with all solid dosage processes. Shawn previously worked at FREUND Inc. for 12 years as a Sr. Process Development Scientist, developing processes on fluid beds, tablet coaters, roll compaction and high shear mixers. Shawn lives in Tipton, IA and is a graduate of Iowa State University.



## **Alan Pieper**

*Sympatec GmbH*  
*Sales and Application Manager USA Midwest*  
[apieper@sympatec.com](mailto:apieper@sympatec.com)

Alan is the SYMPATEC application and sales manager for the Midwest, configuring and testing for particle size and shape using laser diffraction, dynamic imaging, dynamic light scattering, and acoustic extinction technologies for the last 25 years. He has over 34 years of material characterization experience in many different industries. He graduated from Indiana State University with a BS in Geology.

# INTERNATIONAL SALES

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## USA SALES

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## STAY CONNECTED

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We are always here for you to answer questions or talk solutions for current or upcoming projects!

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# FREUND Inc. Granulation & Coating Technology Seminar

September 15-17, 2026

REGISTRATION FORM *(editable PDF)*

Name: \_\_\_\_\_

Job Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Bus.Tel: \_\_\_\_\_ Cell Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**SEMINAR FEE: \$1,950.00**

**Dietary Restrictions: Y N**

If Yes, Please Explain: \_\_\_\_\_

Purchase Order # \_\_\_\_\_

Credit Card

**VISA    Master Card    American Express    Security Code: \_\_\_\_\_**

**Card # \_\_\_\_\_ Exp. Date: \_\_\_\_\_ (mm/yy)**

**Cardholder's Name: (Please Print) \_\_\_\_\_**

**Signature: \_\_\_\_\_ Zip Code: \_\_\_\_\_**

**Return Registration Form**

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