

FREUND INC.

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MARION, IA 52302

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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 GmbH</i> |
| 9:00 am - 9:45 am                   | High Shear Technology: Wet Granulation & Milling | <i>Maren Treat</i>                |
| 9:45 am - 10:15 am                  | Fluid Bed Technology: Top Spray Granulation      | <i>Jack Kenny</i>                 |
| 10:15 am - 10:30 am                 | Break  |                                   |
| 10:30 am - 11:00 am                 | Roll Compaction Technology: Dry Granulation      | <i>Cara Lawless</i>               |
| 11:00 am - 11:45 am                 | Fluid Bed Technology: GXR Rotor Processor        | <i>Jordan Teska</i>               |
| 11:45 am - 12:45 pm                 | Catered Lunch                                    |                                   |
| Labs                                |  |                                   |
| 12:45 pm - 4:15 pm<br>(2 Rotations) | High Shear Wet Granulation                       | <i>Maren Treat</i>                |
|                                     | Fluid Bed: Top Spray Granulation                 | <i>Jack Kenny</i>                 |
|                                     | Roll Compaction: Dry Granulation                 | <i>Cara Lawless</i>               |
|                                     | Fluid Bed: Spherical Granulation                 | <i>Jordan Teska</i>               |
| 4:15 pm                             | Wrap Up/Leave for Hotel                          |                                   |
| 6:35 pm                             | Cedar Rapids Kernals Baseball Game               |                                   |

## DAY TWO: WEDNESDAY

| Labs                                |   |                               |
|-------------------------------------|---|-------------------------------|
| 8:00 am - 11:30 am<br>(2 Rotations) | High Shear Wet Granulation  | <i>Maren Treat</i>            |
|                                     | Fluid Bed: Top Spray Granulation  | <i>Jack Kenny</i>             |
|                                     | Roll Compaction: Dry Granulation  | <i>Cara Lawless</i>           |
|                                     | Fluid Bed: Spherical Granulation  | <i>Jordan Teska</i>           |
| Lectures                            |   |                               |
| 11:30 am - 12:15 pm                 | Excipient Selection, Core Formulation and Extended-Release Dosage Forms | <i>Shawn Engels, Colorcon</i> |
| 12:15 pm - 1:30 pm                  | Catered Lunch/Tour  |                               |
| 1:30 pm - 2:00 pm                   | Fluid Bed: Wurster (Bottom) Spray Coating                               | <i>Tim Smith</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>Jack Kenny</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 Kingston's Steakhouse   |                               |

# AGENDA

## DAY THREE: THURSDAY

| Labs                                |                            |                                |
|-------------------------------------|----------------------------|--------------------------------|
| 8:00 am - 11:30 am<br>(2 Rotations) | Spray Drying               | <i>Jack Kenny/Cara Lawless</i> |
|                                     | Fluid Bed: Wurster Coating | <i>Tim Smith</i>               |
|                                     | Pan Coating                | <i>Maren Treat</i>             |
|                                     | Fluid Bed: Powder Layering | <i>Jordan Teska</i>            |
| 11:30 am - 12:30 pm                 | Catered Lunch              |                                |
| 12:30 pm - 4:00 pm<br>(2 Rotations) | Spray Drying               | <i>Jack Kenny/Cara Lawless</i> |
|                                     | Fluid Bed: Wurster Coating | <i>Tim Smith</i>               |
|                                     | Pan Coating                | <i>Maren Treat</i>             |
|                                     | Fluid Bed: Powder Layering | <i>Jordan Teska</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**

*Process Development Scientist*

[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.

# LIST OF PRESENTERS

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## **Jack Kenny**

*Process Development Scientist*

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

Jack started at FREUND Inc. in June of last year. 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. In the past year, Jack has worked with customers both in the lab and at process sites, collaborated on R&D projects, and helped troubleshoot customer processes.



## **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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*International Sales Manager*

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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

**May 12-14, 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

email: [matt.winkler@freundglobal.com](mailto:matt.winkler@freundglobal.com)

