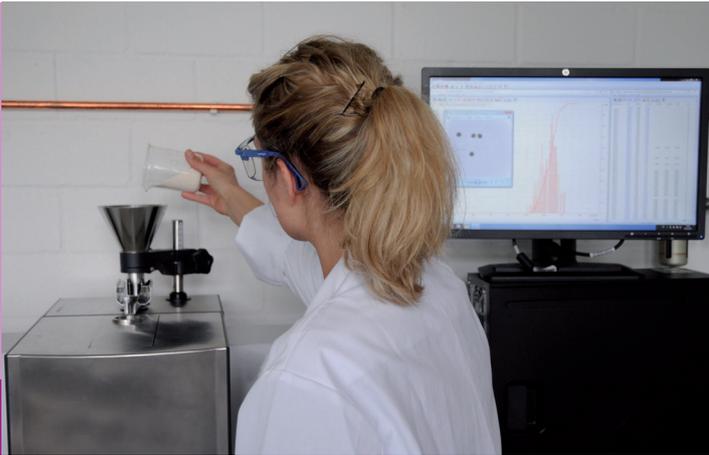
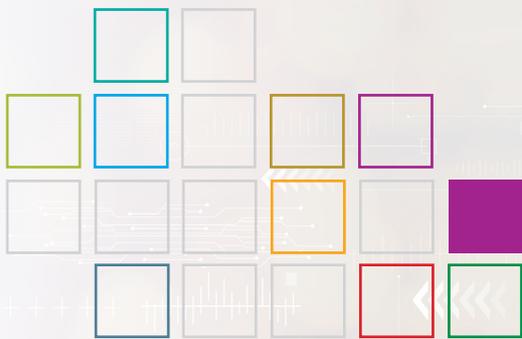


# Powder Flow in Pharmaceuticals - fundamentals and applications



21 - 22 April 2021  
Online Seminar

Course no. 6857



## Research and Development

### Target group

The course is designed for all scientists involved in the development and manufacture of solid dosage forms.

# ONLINE SEMINAR





A seminar organised by the APV focus group Solid dosage forms

## Objectivs

The two day course will provide profound and essential knowledge on particle powder flow with special focus on fundamentals and applications necessary for daily work in development and manufacture of solid dosage forms. Day one gives an overview about fundamentals and analytical methods. In addition equipment manufacturers will present in the market place hands-on information on measurements and sample preparation. In an evaluation workshop the participants will work together in small groups on upfront provided tasks to use the theoretical knowledge on tasks from daily life. The second day is focused on applications of powder flow knowledge, e.g. tanletting, capsule filling and hooper discharge.

## Moderators



**Markus Thommes, PhD, Professor**  
Technical University Dortmund, Germany



**Rok Dreu, PhD, Professor**  
University of Ljubljana, Slovenia

## Programme

**Wednesday, 21 April 2021** 13:00 - 18:00 h (CET)

### Welcome address

Markus Thommes, Technical University Dortmund, Germany  
Rok Dreu, University of Ljubljana, Slovenia

### Fundamentals of Particle Interaction

- particle boundary conditions
- fundamentals
- segregation of powders

Michael Bradley or Richard Farnish, University of Greenwich, Wolfson Centre, United Kingdom

### Stresses in Powders

- normal and shear stresses
- powders at rest vs. Newtonian liquids at rest
- influence of shear rate
- Mohr's stress circle
- consequences on the behaviour of powders

Dietmar Schulze, Ostfalia University of Applied Sciences, Germany

### Definition and determination of powder flow characteristics and their application for designing pharmaceutical processes

- different particle and powder characterization methods and related powder flow parameters
- application of powder flow characteristic values for process design and quality assurance
- use of powder element tests for calibration of DEM simulations

Arno Kwade, iPAT - Institut für Partikeltechnik, TU Braunschweig, Germany

### Powder Flow Measurements - Market place part I

- Ring Shear cell  
Dietmar Schulze, Schüttgutmesstechnik, Germany
- GranuDrum  
Aurélien Neveu, GRANUTOOLS, Belgium
- Flow through orifice  
Erweka, Germany

### Powder Flow Measurements - Market place part II

- FT4 Power Rheometer – Powder Tester  
Rajeev Dattani, Freeman Technology, UK
- Powdertester PT-X  
Nadine Koch, HOSOKAWA ALPINE Aktiengesellschaft, Germany
- MCR with powder flow and powder shear cell  
Timothy Aschl, Anton Paar GmbH, Austria

Discussion

**Thursday, 22 April 2021** 13:00 - 18:00 h (CET)

### Welcome address

Markus Thommes, Technical University Dortmund, Germany  
Rok Dreu, University of Ljubljana, Slovenia

### Tabletting, powder flow and process stability

- Is predictive power of powder flow evaluation methods sufficient to predict process stability?
- Understanding the die fill dynamics.
- Influence of the die diameter and filling depth.

Rok Dreu, University of Ljubljana, Slovenia

### Discussion

### Challenges in assuring uniform capsule filling

- Diversity of Materials – Variety of Equipment
- From low dose small scale filling to continuous manufacturing
- Process Control/ PAT

Eva Faulhammer, RCPE, Austria

### Discussion

### Discharge from Hoppers

- Discharge flow regimes
- Addressing common flow issues
- Using powder flow measurements for hopper design

James K. Prescott, Jenike & Johanson, United States

### Discussion

### Workshop:

#### Evaluation of data (Office hour)

– Work on tasks in groups (tasks will be provided upfront)

Final discussion and remarks

Date	Registration fee	21 April	22 April	21 & 22 April
Course no.: 6857				
21 April 2021	13:00 - 18:00 h			
22 April 2021	13:00 - 18:00 h			
<b>Registration</b>	Industry	<input type="checkbox"/> 500.00 €	<input type="checkbox"/> 500.00 €	<input type="checkbox"/> 900.00 €
APV-Geschäftsstelle Kurfürstenstraße 59 55118 Mainz/Germany Phone: 0049 6131 97 69 0 Fax: 0049 6131 97 69 69 E-mail: apv@apv-mainz.de Web: www.apv-mainz.de	Academia/ Government	<input type="checkbox"/> 250.00 €	<input type="checkbox"/> 250.00 €	<input type="checkbox"/> 450.00 €
	Students (full time, written evidence must be sub- mitted)	<input type="checkbox"/> 85.00 €	<input type="checkbox"/> 85.00 €	<input type="checkbox"/> 150.00 €

You will receive a confirmation of your registration with the invoice. (please tick one)

## Powder Flow in Pharmaceuticals, 21 - 22 April 2021, Online Seminar, Course no.: 6857

### Registration

As soon as you have found a seminar of your interest, it is very easy to register for it via fax, e-mail or online. We will process your registration promptly and certainly are available for any questions that may arise.

### Registration confirmation

After your registration was successfully processed, you will receive a confirmation.

### Before the event

A few days before the event starts, you will receive important information about the seminar, such as time, date, addresses etc.

### After the event

You will receive a certificate confirming your participation. Furthermore, we would like to ask you to fill-in our evaluation sheet to make sure we get better every time.

### Follow-up

After the event, we are open to receive any suggestions and critique that might arise during the seminar and will certainly help you with further questions you may have.

### Declaration of consent in respect of data protection

By registering for this seminar, I agree that the APV uses my data for the purpose of processing the order and provides me with all relevant information.

I also agree that APV may contact me for the purpose of exchanging similar information by email or post.

Your data will not be shared with third parties. You have a right of withdrawal at any time without giving reasons.

All other information can be found in our privacy policy ([www.apv-mainz.de/en/imprint/data-protection-statement/](http://www.apv-mainz.de/en/imprint/data-protection-statement/)).

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