



In-service Training Course for Specialists, Executives, Technicians & Scientist working in the Food, Biotech, Pharmaceutical, and Chemical Industry

Fluid Bed Technology: Fluidisation, Granulation/Coating and Drying

June 9 - 11, 2027

At Phoenix Copenhagen, in the
heart of Copenhagen, Denmark

Available both in-
person and online

Outcome

Through a combination of presentations, hands-on exercises, and plenary discussions, participants will gain a solid foundation in fluid bed technology and fluidisation, enabling them to address practical challenges in these areas.

Main subjects taught in the course

- Fluidisation and classification of particles
- Fluid bed designs - batch and continuous
- Formulation and process considerations
- Coating and agglomeration at particle level
- Scale-up of fluid bed systems & equipment design
- Drying of solids in fluid beds
- Moisture in air
- Moisture in powder - product lumping
- Energy and mass balances
- Operational problems and how to solve them

Target group

The course addresses specialists, executives, technicians, planners & plant designers working in the chemical, pharmaceutical, biotech and/or food industry with manufacture or development of particle products in batch or continuous fluid bed processes such as granulation, coating, agglomeration and/or drying.

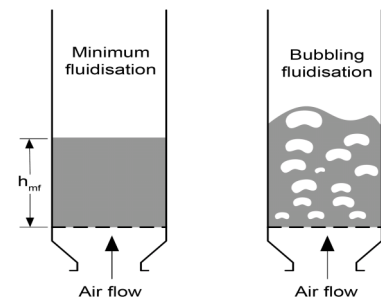
Form

The course runs for three consecutive days with alternating presentations, exercises and plenum discussions.

The course is held in English.

Social event

On the afternoon of the first day the participants are invited to dinner in the colourful 17th century waterfront of Nyhavn in the heart of Copenhagen.



Registration and further information: Please see the next pages

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Teacher

Ph.D., Peter Dybdahl Hede



- Specialist in industrial particle technology
- PhD in Fluid bed technology
- +20 years of teaching experience from The Danish Society of Engineers, Technical University of Denmark, and in-service training courses in particle technology
- Contact: PTHD@seydlitz.dk

Co-presenters

- Equipment manufacturers



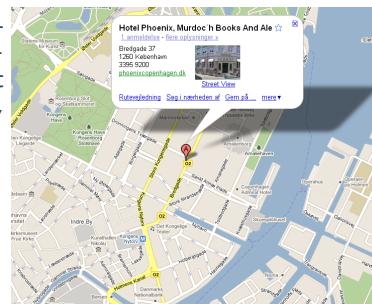
Venue



Phoenix Copenhagen is a 4-star deluxe hotel housed in one of Copenhagen's historic buildings. Situated in Copenhagen, near Amalienborg Palace, just a few metres' walk from Nyhavn, Kongens Nytorv, Strøget and other sights.

Address: **Bredgade 37, DK-1260 Copenhagen K, Denmark**

Telephone: **+45 33 95 95 00**
Booking & service: **bookphoenix@arp-hansen.dk**



Fee

The course fee is payable in advance and includes course materials, scientific pocket calculator, coffee, water & refreshments, lunch all three days.

Physical presence: Per person EUR 2385,- plus VAT. VAT is reclaimable.

Online Presence: Per person EUR 1975,- (No VAT is charged)

Overnight stay at the delegates own expense can be arranged at the course venue at special prices (please mention the fluid bed course) or elsewhere nearby. Please contact Hotel Phoenix Copenhagen at **+45 33 95 95 00** or **bookphoenix@arp-hansen.dk**.

Kindly note that central Copenhagen is very popular in spring time and that Copenhagen hotels may be fully booked well in advance.

Registration

Binding registration at www.seydlitz.dk/courses no later than 15th of May 2027. In case of any questions please contact **info@seydlitz.dk** or phone **+45 44 10 87 00**.

The course may be subject to cancellation in case of too few participants.

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Course contents

Day 1: Subject

10.00 - 10.15	Course introduction
10.15 - 12.00	Particles and particle size distributions Particle shape and sphericity Measurement of particle size
12.00 - 13.00	Lunch
13.00 - 14.00	Particle characterisation
14.00 - 14.45	Single particles in fluids Stokes law Terminal velocity Particles falling under gravity in a fluid
14.45 - 16.30	Multiple particles in fluids Fluidisation theory, types of fluidisation Minimum fluidisation velocity Pressure drop estimations, Two-phase theory, Geldart Chart Classification of particles, bubbles - diameter and bubble rise velocity Expanded bed height, elutriation, fluidisation regimes
18.00 - 20.30	Dinner in Nyhavn



Day 2: Subject

9.00 - 10.00	Fluidisation flow modes and mixing in fluid beds Introduction to fluid bed granulation and coating Industrial examples of granulated products
10.00 - 12.00	Fluid bed granulation/coating – equipment design and operations
12.00 - 13.00	Lunch
13.00 - 15.30	Fluid bed designs - top-spray, Wurster, tangential - batch vs. continuous fluid beds Back-mix vs. plug flow Use of fluidisation: Powder transport via fluidization -dense-phase/dilute-phase transport Saltation & choking velocity How to control a fluid bed process Filter systems and safety installations Atomisation: Two-fluid nozzles and the influence of droplets and droplet size Agglomeration and coating at particle level - viscous Stokes granulation theory Mechanical strength of granulates Modelling of granulation processes (DEM, population balances, CFD) Scale-up of fluid bed granulation systems, Practical correlations
15.30 - 16.00	Operational problems in fluidised beds





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Course contents - continued

Day 3:

Subject

9.00 - 9.30	Mass and energy balances in fluid bed drying Drying and energy consumption - how can we save energy?
9.30 - 10.30	Moisture in air, H-X diagrams and how to use it for fluid bed drying estimations
10.30 - 11.00	Moisture in powder When powders lump: Common problems with moisture in powder
11.00 - 12.00	Design of fluid beds for granulation and coating processes 
12.00 - 13.00	Lunch
13.00 - 15.00	Design of fluid beds for gran. and coating processes (continued) Design of fluid beds for drying processes Case examples 
15.00 - 15.45	Formulation issues when working with products produced in fluid beds Case example from the biotech industry
15.45 - 16.00	Final remarks, Course evaluation



 **VISITCOPENHAGEN** THE OFFICIAL WEBSITE

Please see all of our courses at:
www.seydlitz.dk/courses