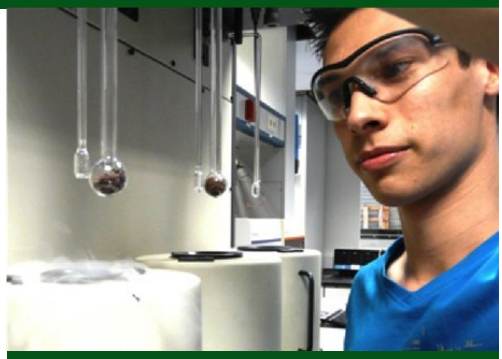
COURSE

POROSITY AND SURFACE AREA CHARACTERIZATION



Why the course Porosity and Area Characterization?

Particle characterization concerns a wide range of materials and products: ranging from large molecules (proteins and polymers), micelles, micro-emulsions, viruses, droplets, latexes, fine dust particles, pigments, clay and minerals up to sand and gravel.

Powders and granular material are of key importance in industry. Approximately 80% of the industrial processes deals with such solid matter. In the chemical industry alone, half of the final products and 75% of the semi-finished products is in powder or granular form.

Delft Solids Solutions offers two courses devoted to particle characterization:

In this second course, the overall basic principles and definitions of porosity, density, pore size distributions and specific surface area of solid materials are discussed. In addition, also the characterization of different types of active sites (e.g. catalysts) and their surface area are discussed. Pros and cons of the techniques are highlighted and common pitfalls in porosity and surface area characterization are interactively discussed. Accuracy, quality and quality control are separate topics that are dealt with together with selection of appropriate measurement techniques. A fully-equipped laboratory is located in the same premises as where the course is taught, which enables a perfect blend between theory and practice.

This course is in close relation to the course *Particle Size Characterization*. Both courses are scheduled together in order to enable attendance of both courses in a series of 3 days.

For whom?

You are an operator, analyst, lab manager or technologist and are directly involved and/or interested in the characterization of particles. The course content is tailored to post-bachelor (Post-HBO) level, however the combination of theory and practical examples makes the course suitable for both experienced analysts at vocational level (MBO) or VAPRO-C as well as participants with academic background.

Program

The central theme addressed in this course is how to define and characterize porosity, surface area, crystallite size and active surface area and density of particles.

- Introduction porous and non-porous materials, porosity and surface area
- Physical gas adsorption
- Mercury intrusion porosimetry
- Chemical gas adsorption
- Pycnometry
- Comparison of techniques for porosity assessment
- Quality, reference materials and standards

Delft Solids Solutions

SMALL MATTERS

COURSE
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Methodology
The course is organized by and at the premises of Delft Solids Solutions, where also a fully equipped laboratory is available. In this laboratory the most important techniques in the area of poristy and surface area characterization including sampling and sample pre-treatment equipment is available.

Practical demonstrations of the various types of equipment are used to alternate with the various lectures. Emphasis lies on the practical use and application of the techniques and how to translate results to the practical situations.

Duration
The course consists of one successive day of 8 hours.

End result
After attending this course you will have a good overview of the available techniques for porosity and surface area characterization. You know the underlying principles of the various methods, as well as the reliability of the measurement results. You know how to perform sampling and how to interpret the results and judge the quality of it.

Certificate
Upon completion of the course you'll receive a certificate of participation.

Location and dates
This course is held at the premises of Delft Solids Solutions, Molenweer 2B, 2291 NR Wateringen, The Netherlands.
The next course will be held on 4 November 2016.

Financial investment
The investment in this 1-day course amounts to € 825,- ex. VAT.

In combination with the course ***Particle Size Characterization*** (3 successive days in total) the overall investment is € 1.995,- ex. VAT.

The course is hosted by the following lecturers:

- Course leader Dr. Ir. G.M.H. Meesters (photo left), Formulation expert, DSM Food Specialties and Assistant Professor at Delft University of Technology.
- Other lecturers:
  - Dr. Ing. J.C. Groen (foto middle), director science & technology, Delft Solids Solutions, has for many years worked at the Delft University of Technology and gained his PhD on development of hierarchically structured materials.
  - L.A.A. Peffer (photo right), General Director, Delft Solids Solutions, served 25 years at the Delft University of Technology as lab manager in the field of particle, texture and surface characterisation.

Academy

Contact
For more information on this course, you can reach us at +31 174 271 460.
Or send an email to info@solids-solutions.com

Delft Solids Solutions

EXPERTS IN PARTICLE TECHNOLOGY