



## TRAINING

# Sampling and measurement error calculation for insurance and quality control

### OBJECTIVE

Estimate overall errors for moisture and particle size distribution analyses

### INTENDED AUDIENCE

Process engineers, technicians concerned by material characterization (quality control, plant survey and site diagnostic)

### OUTLINE

#### Measurements and their sources of uncertainty

- Measuring moisture content and particle size distribution
- Overview of the standards
- Origins of measurement uncertainty and variability

#### Estimate the measurement error

- Components of the total measurement error – application to moisture content and particle size distribution
- Weighing error calculation
- Sampling error for moisture
- Sampling error for particle size distribution
- Analytical error of size distribution proportions for a simple case
- Uncertainty range for a size distribution
- Measurement error for parameters such as mean size, d80 or d95, dispersion

#### Case studies

- Calculation of the total measurement error of the moisture content and particle size distribution for various materials and measurement methods
- Design of a sampling and measurement plan for moisture content and particle size distribution to meet tolerance requirements
- Design of a sampling plan for the size distribution measurement of a coarse material
- Case of stocks or material stream

### TEACHING METHODS

- Training is based on documents given to the trainees.
- Several real cases, using spreadsheet, illustrate the theoretical presentations.

### PREREQUISITES

- Use of spreadsheet software (such as Microsoft Excel)
- Knowledge of methods for measuring moisture content and particle size distribution
- Basic knowledge of sampling issues

### DURATION

1 day

### REGISTRATION FEE

750 € (excl. taxes)

### DATES

- February 8, 2018
- September 25, 2018

### VENUE

Orléans, France

### ADVANTAGES

- Approach based on real cases
- Training in French, English or Spanish



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## REGISTRATION FORM

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CASPEO - 3 Avenue Claude Guillemin - BP 36009 - 45060 ORLEANS CEDEX 2 - FRANCE

### INFORMATION ABOUT THE TRAINING SESSION

Training session

Date

Price

How did you hear about it?

### COMPANY INFORMATION

Name

Address

Zip code

City

Country

VAT No  
(for European country)

### PARTICIPANT INFORMATION

Name

Surname

Position

Phone

E-mail

Name

Surname

Position

Phone

E-mail

Date

Signature

**For any cancellation, less than 10 days before the start of the training session, 50% of the price will be invoiced.**

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