

Physical Tester – Basics of Cement Testing

4- TO 5-DAY PROGRAM FOR CLASSES WITH UP TO TEN PARTICIPANTS

Procedures, Methods, Equipment, and Understanding Test Results

Program Content:

■ Sampling & Control Tests for Cement

Why do we test?
When do we test?
How do we test?

■ Fundamentals of Cement Testing

Classroom and hands-on training for standard paste and mortar tests
Tips not clearly addressed in test methods
Understanding test results

■ Use & Maintenance of Equipment

Expectations of cement & mortar lab staff
Calibration of equipment
Impact of poorly maintained equipment

■ ASTM Standards & Specifications

These test methods will be included in the hands-on sessions:

- *Compressive Strength of Mortar per ASTM C109*
- *Autoclave Expansion per ASTM C151*
- *Normal Consistency of Cement per ASTM C187*
- *Time of Set per ASTM C191 and ASTM C266*
- *Air Content of Mortar per ASTM C185*
- *Flow Determination of Mortar per ASTM C1437*
- *False Set of Paste C451 and Mortar C359*

These specifications will be discussed:

- *Portland cement (ASTM C150)*
- *Hydraulic cement (ASTM C1157)*
- *Mechanical mixing of pastes and mortars (ASTM C305)*
- *Blended hydraulic cements (ASTM C595)*
- *Slag cement (ASTM C989)*
- *Flow table (ASTM C230)*
- *Fly ash and natural pozzolans (ASTM C618)*
- *Standard sand (ASTM C778)*
- *Terminology (ASTM C219)*

■ Testing for Optional ASTM Requirements

Sulfate resistance
False set
Blaine fineness
Drying shrinkage
Mortar expansion (ASR)

■ Other Cementitious Materials

Blended cement
Fly ash
Slag cement
Silica fume
Cement kiln dust (CKD)
Limestone additions

Who should attend:

Laboratory staff that test cement and cementitious materials, including new laboratory staff members, QA/QC supervisors/managers, lab supervisors, project managers, or anyone interested in the basics of testing cementitious materials.

Instructor:

Michael Morrison is Manager, Certification Program Development, for ACI. He has over 18 years of experience supervising or performing physical tests for cement and has trained more than 60 testers.

Seminar handouts:

- PCA's Design & Control of Concrete Mixtures (EB113T)
- Special Handout Binder with notes and all required ASTM standards assembled by the instructor

Membership:

Participation in this program includes a 1-year membership with the local ACI Chapter and a 1-year membership in ASTM Committee Co1, Cement.

