

Cement Analysis

Construction Materials Consultants, Inc.

CMC provides various industry standard tests for quality assurance and evaluation of conformance to the specifications of portland cement, fly ash, ground granulated blast furnace slag, silica fume, lime, gypsum, hydraulic cement, masonry cement, and mortar cement. Our chemists and petrographers have extensive knowledge and experience in physical, chemical, and microscopical examination of various cementitious materials.

QUALITY ASSURANCE

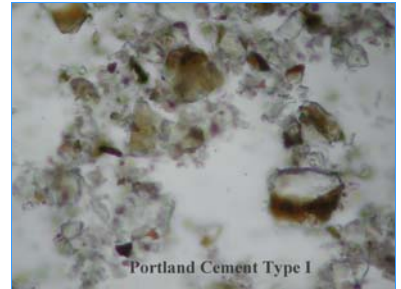
- Portland Cements—Conformance to Physical, Chemical, and Optional Requirements of ASTM C 150
- Fly Ash (ASTM C 618)
- Ground Granulated Blast Furnace Slag (ASTM C 989)
- Silica Fume (ASTM C 1240)
- Gypsum Products (ASTM Vol 4.01)
- Lime Products (ASTM Vol 4.01)
- High early strength, fast setting, shrinkage-compensating cements
- Expansive Cements (ASTM C 845)
- High Alumina Cement
- Masonry Cement (ASTM C 91)
- Mortar Cement (ASTM C 1329)
- Stucco Cement (ASTM C 1328)
- Blended Cement (ASTM C 595)
- Terminology Related to Gypsum, Lime, and Cement (ASTM C 11, C 51, C 219)
- Hydrated Lime (ASTM C 207)
- Hydraulic Hydrated Lime (ASTM C 141)
- Other miscellaneous tests

TESTS AND TECHNIQUES

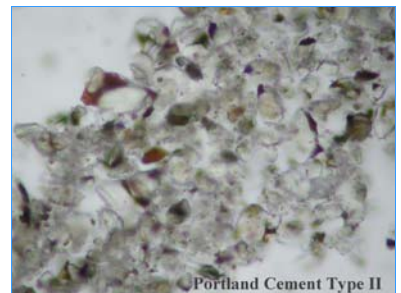
- Petrographic Examinations (ASTM C 856)
- Chemical Analysis (ASTM C 114)
- X-ray Fluorescence
- Atomic Absorption
- X-ray Diffraction (ASTM C 1365)
- Fineness (ASTM C 115, C 204)
- Thermal Analysis (TGA, DTA, DSC)
- Autoclave Tests (ASTM C 151)
- Compressive Strength
- Heat of Hydration (ASTM C 186)
- Setting Time (ASTM C 191, C 266)
- Early Stiffening (ASTM C 359, C 451)
- Sampling (ASTM C 183)
- Length Change of Mortar—In Water (ASTM C 1038), In Sulfate Solution (ASTM C 452, 1012)
- Compressive Strength of Mortar (ASTM C 109/C 109M)

DETECTION IN CONCRETE

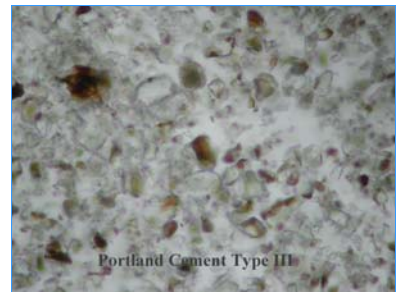
- Type and amount of cementitious materials
- Influence on strength, durability, and other properties of concrete
- Degree of hydration or pozzolanic reaction
- Effects of fly ash, slag, and silica fume in densifying concrete microstructure



Oil Immersion Mount of a Type I Portland Cement in a Petrographic Microscope



Oil Immersion Mount of a Type II Portland Cement in a Petrographic Microscope



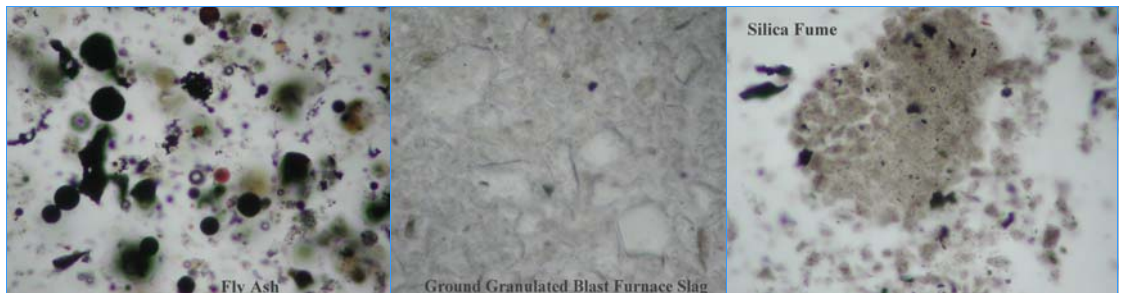
Oil Immersion Mount of a Type III Portland Cement in a Petrographic Microscope

CMC

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For detailed information about other testing, evaluation, and consulting services, please visit us online at:

www.cmc-concrete.com



Oil immersion mounts of three commonly observed pozzolanic and cementitious materials beside portland cement—all photomicrographs are taken at a magnification of 400X.