



Designation: D5239 – 04

Standard Practice for Characterizing Fly Ash for Use in Soil Stabilization¹

This standard is issued under the fixed designation D5239; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope*

1.1 This practice covers procedures for characterizing fly ash to be used in soil stabilization. This practice lists representative test methods for determining the chemical, physical, and cementitious properties of fly ash. A broad guideline is provided in **Appendix X1** that explains the significance of these properties in soil stabilization.

1.2 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice **D6026**.

1.2.1 The method used to specify how data are collected, calculated, or recorded in this standard is not directly related to the accuracy to which the data can be applied in design or other uses, or both. How one applies the results obtained using this standard is beyond its scope.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound equivalents are shown for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

1.5 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

1.6 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes

(excluding those in tables and figures) shall not be considered as requirements of the standard.

2. Referenced Documents

2.1 *ASTM Standards:*²

C25 Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime

C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

C191 Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle

C265 Test Method for Water-Extractable Sulfate in Hydrated Hydraulic Cement Mortar

C305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency

C311 Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

C593 Specification for Fly Ash and Other Pozzolans for Use With Lime for Soil Stabilization

C821 Specification for Lime for Use with Pozzolans

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D1293 Test Methods for pH of Water

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D6026 Practice for Using Significant Digits in Geotechnical Data

3. Terminology

3.1 *Definitions:*

3.1.1 For common definitions of terms in this standard, refer to Terminology **D653**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *non self-cementing fly ash, n*—fly ash produced from the combustion of pulverized or crushed coal. This fly ash has pozzolanic properties and no self-cementing properties.

¹ This practice is under the jurisdiction of ASTM Committee **D18** on Soil and Rock and is the direct responsibility of Subcommittee **D18.15** on Stabilization With Admixtures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard