



Designation: D 5050 – 96

Standard Guide for Commercial Use of Lime Kiln Dusts and Portland Cement Kiln Dusts¹

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1. Scope

1.1 This guide is intended to evaluate and describe lime kiln dusts and Portland cement kiln dusts for uses in commercial applications. This guide is not intended to cover uses for lime or Portland cement.

1.2 *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 limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- C 25 Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime²
- C 109 Test Method for Comprehensive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)²
- C 110 Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone²
- C 151 Test Method for Autoclave Expansion of Portland Cement²
- C 184 Test Method for Fineness of Hydraulic Cement by the 150-μm (No. 100) and 75-μm (No. 200) Sieves²
- C 187 Test Method for Normal Consistency of Hydraulic Cement²
- C 266 Test Method for Time of Setting of Hydraulic Cement Paste by Gillmore Needles²
- C 305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency²
- C 400 Test Methods for Testing Quicklime and Hydrated Lime for Neutralization of Waste Acid²
- C 593 Specification for Fly Ash and Other Pozzolans for Use With Lime²
- C 602 Specification for Agricultural Liming Materials²
- C 911 Specification for Quicklime, Hydrated Lime, and Limestone for Chemical Uses²

D 558 Test Method for Moisture-Density Relations of Soil-Content Mixtures³

D 1632 Practice for Making and Curing Soil-Cement Compression and Flexure Test Specimens in the Laboratory³

D 1633 Test Method for Compressive Strength of Molded Soil-Cement Cylinders³

D 3155 Test Method for Lime Content of Uncured Soil-Lime Mixtures³

D 3551 Practice for Laboratory Preparation of Soil-Lime Mixtures Using a Mechanical Mixer³

D 3668 Test Method for Bearing Ratio for Laboratory Compacted Soil-Lime Mixtures³

D 4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils³

2.2 Code of Federal Regulations

40 CFR Part 268 Appendix 1 Toxicity Characteristics Leaching Procedure⁴

40 CFR Part 268.43(a) Treatment Standards Expressed as Waste Concentrations (reserved)⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 lime kiln dust:

3.1.1.1 Lime kiln dust is the finely-divided particulate matter carried from a lime kiln by the exhaust gases.

3.1.1.2 The composition of the dust is dependent upon the stone being processed, the processing equipment in use, and the fuel being used. Concentrations of combustion by-products, including sulfur compounds usually exceed that of the primary quicklime product. Chemical and physical properties are also dependent upon these same factors and should be evaluated for the use intended.

3.1.2 portland cement kiln dust:

3.1.2.1 Cement kiln dust is the finely-divided particulate matter carried from a cement kiln by the exhaust gases.

3.1.2.2 The dust is composed of variable mixtures of calcined and uncalcined feed materials, fine cement-clinker formed during the high temperature processing, fuel combustion by-products, and condensed alkali compounds. Alkalis may be concentrated in the dust through volatilization in the

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² *Annual Book of ASTM Standards*, Vol 04.01.

³ *Annual Book of ASTM Standards*, Vol 04.08.

⁴ Code of Federal Regulations available from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402.