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Standard Guide for Alkaline Stabilization of Wastewater Treatment Plant Residuals¹

This standard is issued under the fixed designation D6249; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This document provides guidance for use of reactive alkaline materials (quicklime, hydrated lime, high lime fly ash, or other byproducts) for treating wastewater solids (biosolids) to reduce pathogen levels and achieve compliance with regulatory requirements. Federal (40 CFR, Part 503) regulations for use or disposal of biosolids became effective on March 22, 1993; refer to USEPA regulations and guidance documents for information on other treatment processes or for specific requirements for use or disposal of biosolids.

1.2 Additional requirements may be imposed by individual states, and these are available through state regulatory agencies that issue permits for treatment and use or disposal, or both, of biosolids.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This guide 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.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

¹ This guide is under the jurisdiction of ASTM Committee C07 on Lime and Limestone and is the direct responsibility of Subcommittee C07.02 on Specifications and Guidelines.

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

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

C110 Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone

2.2 USEPA Publication:

Title 40, Code of Federal Regulations (CFR), Part 503, Standards for the Use or Disposal of Sewage Sludge; Final Rules, 58 FR 9248-9404³

3. Terminology

3.1 *Acronyms*—These are defined by operating parameters (for example, time, temperature) whose values must be met in order for biosolids to be used in various ways as a nutrient source/soil conditioner. Ref. 40 CFR Part 257.

3.1.1 *PFRP*—Processes to Further Reduce Pathogens (equivalent to 503 Class A).

3.1.2 *PSRP*—Processes to Significantly Reduce Pathogens (equivalent to 503 Class B).

4. Significance and Use

4.1 Operators of power and other plants producing alkaline by-products and wastewater treatment plant operators needing to treat and manage wastewater solids will find this guide helpful in dealing with their materials.

4.2 This guide provides the tests, procedures, and parameters that should be considered to significantly reduce pathogens in wastewater treatment plant solids by the addition of manufactured or by-product alkaline materials (1).⁴

5. Alkaline Materials Characteristics

5.1 *Chemical Composition*: Alkaline materials may be tested for Available Lime Index (ALI) in accordance with the optional chemical test of Table 1. Other chemical components, if required, may be determined in accordance with the appropriate procedure when requested by the purchaser.

5.2 Reactivity:

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

⁴ The boldface numbers in parentheses refer to the list of references at the end of this guide.