

Hydrated Lime - 21

1. REFERENCED DOCUMENTS

1.1 AASHTO Standards:

- AASHTO M 303 - Lime for Asphalt Mixtures
- AASHTO R 38 – Quality Assurance of Standard Manufactured Materials

1.2 ASTM Standards:

- ASTM C 25 - Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
- ASTM C 50 - Standard Practice for Sampling, Inspection, Packing, and Marking of Lime and Limestone Products
- ASTM C 110 - Standard Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone
- ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes
- ASTM C 977 - Standard Specification for Hydrated Lime for Soil Stabilization

2. TERMINOLOGY

- 2.1 See ASTM C 51 Standard Terminology Relating to Lime and Limestone (as used by the Industry).
- 2.2 Supplier—In this Standard, a *Supplier* shall be defined as one who manufactures hydrated lime.
- 2.3 Contractor – The Company under contract with CDOT to produce products using hydrated lime.

3. SIGNIFICANCE AND USE

- 3.1 This Standard specifies procedures intended to minimize disruption of hydrated lime shipments. This is accomplished by a certification system that evaluates quality control and specification compliance tests performed by the Supplier on samples obtained before shipment.
- 3.2 This Standard specifies requirements and procedures for a certification system that shall apply to all Suppliers providing hydrated lime. These provisions apply to the plant manufacturing the hydrated lime. These provisions apply to the Contractor, after delivery of the hydrated lime, for use on CDOT projects.

4. SAMPLING

- 4.1 All test samples required by this Standard shall be obtained per ASTM C 50. The use of a random sampling procedure is mandatory to the establishment of a valid quality assurance program.

5. TESTING REQUIREMENTS

- 5.1 Laboratories that perform the required testing under this Standard shall list qualifications in the submitted Supplier Quality Control Plan. Any satellite laboratory of a Supplier that performs required testing under this Standard shall be identified in the submitted Supplier Quality Control Plan (Section 7).

6. SUPPLIER REQUIREMENTS

- 6.1 Suppliers shall submit to the CDOT's Product Evaluation Coordinator (PEC) the CDOT Form 595, Pre-Approved Product Evaluation Request & Summary for each source of hydrated lime intended for use on CDOT projects. Instructions for completing Form 595 can be found in Notice to Manufacturers at <https://www.codot.gov/business/apl>
- 6.2 In addition to completing CDOT Form 595, the following shall be supplied to the PEC:
- 6.2.1 A brief outline of the procedures used to evaluate the finished product including; sampling and testing frequency, and the sample preparation employed, including chemical analysis methods used.
- 6.2.2 The results of all applicable chemical and/or physical tests required by AASHTO M303, ASTM C 110, ASTM C 207, or ASTM C 977 on the most recent 20 samples tested. The results shall be submitted in a tabular format with the critical limits indicated.
- 6.2.3 A copy of the Supplier's Quality Control Plan, which complies with the requirements of Section 7. Any changes to the supplier's Quality Control plans shall require an updated plan sent to the PEC.
- 6.3 A sample of the proposed hydrated lime shall be shipped to the PEC at the Materials and Geotechnical Branch, 4670 North Holly Street, Unit A, Denver, Colorado 80216-6408.
- 6.4 During normal business hours, the Supplier shall allow CDOT to visit the production and/or shipping site to observe the Supplier's quality control activities, inspect the facilities, and obtain samples for tests.
- 6.5 The Supplier shall follow the procedures described in the CDOT approved quality control plan.
- 6.6 The Supplier shall establish a continuing test record for every test required for hydrated lime included in the written request as prepared to satisfy the requirements of Subsection 6.2.
- 6.7 The Supplier shall submit to CDOT all reports required by this standard in a format approved by CDOT.

6.8 The Supplier shall have a satisfactory record of compliance with CDOT project specifications. Decisions by CDOT concerning this requirement shall be based on the test results furnished by the Supplier and satisfactory results when the splits and field tests are compared with Supplier tests.

7. SUPPLIER QUALITY CONTROL PLAN (MINIMUM REQUIREMENTS)

7.1 The Supplier's Quality Control Plan shall identify the following:

7.1.1 Facility location.

7.1.2 Name and telephone number of a person at each production facility, responsible for quality control of material shipped to CDOT projects.

7.1.3 Quality control tests and testing frequency to be performed on each hydrated lime product.

7.1.4 Name and location of the laboratory performing quality control tests on the hydrated lime.

7.2 The Supplier's Quality Control Plan shall include a declaration stating that if a test result indicates that a shipment of hydrated lime does not comply with the purchase specifications, the Supplier shall:

7.2.1 Identify the material in the shipment,

7.2.2 Immediately cease the shipment until the material complies with the specification,

7.2.3 Immediately notify CDOT regarding the shipment in question,

7.2.4 Immediately notify the Contractors scheduled to use the material from the shipment in question,

7.2.5 Notify CDOT before resuming shipment; and

7.2.6 Implement any mutually agreed-upon procedures for the disposition of the material.

7.3 The Supplier's Quality Control Plan shall describe the method and frequency for initial and quality control testing.

7.3.1 **Initial Testing** - For each hydrated lime product to be supplied, testing shall be initially performed by the supplier and the results of those tests shall be provided to CDOT, accompanied by a sample of the material represented by the test results.

7.3.2 **Quality Control Testing** – Tests to determine conformance with Subsection 712.03 of the Standard Specifications shall be conducted as needed for quality control. The Supplier's Quality Control Plan shall indicate the frequency of this testing.

7.4 The Supplier's Quality Control Plan shall include a statement that the Supplier will prepare and maintain summary reports for all quality control tests performed, and will submit them to CDOT on request.

7.5 The Supplier's Quality Control Plan shall provide an outline of the procedure to be followed for checking transport vehicles before loading to prevent contamination of shipments. The outline shall be maintained in the Supplier's records and will be made available to CDOT on request.

8. CDOT EVALUATION PROCEDURE

8.1 CDOT will verify that the Supplier's Quality Control Plan is adequate. CDOT may visit the shipping site when required.

8.2 CDOT will notify the Supplier whether or not the Supplier's application has been granted.

8.3 CDOT may perform split sample testing per Section 10.

8.4 On a random basis, CDOT may request a sample for testing the supplier's product.

8.5 CDOT may inspect the operations of the Supplier's facility including those related to shipments if required.

8.6 CDOT will post the Supplier's approved hydrated lime with the associated Supplier's facility name on CDOT's Approved Products List. Reference to the web site is at:
<https://www.codot.gov/business/apl>

9. REQUIREMENTS FOR SHIPPING HYDRATED LIME BY AN APPROVED SUPPLIER

9.1 The Supplier's Quality Control Plan as approved by CDOT (Section 7) shall be implemented.

9.2 Each shipment shall be accompanied by two copies of the bill of lading, which shall include:

9.2.1 The name and location of the Supplier,

9.2.2 The Type of material shipped,

9.2.3 The quantity of material shipped,

9.2.4 The date of shipment,

9.2.5 A certificate of compliance (COC) certifying the material meets specification requirements. The COC statement will certify the material was manufactured and tested per CDOT's approved Quality Control Plan (Section 7) and, therefore meets State requirements and,

9.2.6 A statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped.

9.3 If the test results do not conform to Standard Specification Subsection 712.03, the Supplier shall remove the non-compliant material from the shipping queue as outlined in Subsection 7.2.

10. SPLIT SAMPLE TESTING

- 10.1 CDOT may request split sample testing. The test results will be exchanged as soon as they are available.
- 10.2 If the split sample test data is not within the precision specified for that particular test a review of both sampling and testing procedures will be conducted by both the Supplier and CDOT.

11. REPORT AND DATA SHEETS

- 11.1 Supplier Reports - The Supplier shall prepare the reports described in Subsections 6.1, 6.2, and 9.2.

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