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Standard Practice for Sampling Ceramic Whiteware Clays¹

This standard is issued under the fixed designation C322; 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 practice covers procedures for sampling bulk and bagged shipments of ceramic whiteware clays.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *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. Significance and Use

2.1 Since many tests are performed using very small amounts of powder, it is most important that the test portions be obtained in a standardized manner. The practices described here take into account the possibility of segregation and variability of the ceramic powder in containers of the various sizes and numbers, both in dry and slurry forms.

3. Sampling

3.1 Where a bulk shipment consists of lumps, a number of samples shall be taken from different parts of the rail car or truck during unloading, so that the final sample will represent an average of all parts of the shipment from top to bottom. For a 30-ton (27-Mg) unit, no less than 20 samples of approximately 10 lb (4.5 kg) each shall be taken from different parts of the rail car or truck. This may be done by removal during loading or unloading, at spaced intervals. The lumps shall then be broken to pieces no larger than 4 in. (102 mm), in the largest dimension, and the several samples shall be made into a composite lot, by turning with a shovel on a clean floor. The composite shall then be quartered or riffled to provide a 10-lb laboratory sample.

3.2 Sampling of hopper car or hopper truck shipments is to be done during unloading of the car or truck.

3.3 Where a bulk shipment consists of shredded or coarsely ground clay, sampling shall be done at 20 points for a 30-ton (27-Mg) unit; the samples may be taken with a shovel, or with a grain sampler, if the form of the clay permits. The samples so taken shall then be mixed thoroughly, and quartered or riffled to form a 10-lb (4.5-kg) (or proportionately larger) laboratory sample.

3.4 For bagged lots of ground or air-floated clay, the number of samples taken shall depend on the number of units in a shipment. A grain-sampler or similar sampling instrument shall be used to take samples which then shall be combined, mixed, and quartered or riffled to obtain a 10-lb (4.5-kg) laboratory sample. Where a shipment consists of 100 bags or less, the number of bags sampled at random shall be not less than 5 and preferably 10. When the number of bags is greater than 100 but less than 500, the number of bags sampled shall not be less than 15. For lots of from 500 to 1000 bags, 20 bags shall be sampled. For shipments of 1000 to 2000 bags, 30 bags shall be sampled at random.

3.5 When the clay is shipped in slurry form a representative sample may be obtained by taking a single grab sample from any portion of the shipment except by skimming the top surface. If the shipment has been unagitated for a period of two weeks or more the shipment can be agitated by inserting an air lance to the bottom of the vessel for a period of ten minutes. One two-liter sample is required.

3.6 Preshipment samples of slurries and bulk materials from the supplier can be used, replacing the sampling done when the shipment is received.

¹ This practice is under the jurisdiction of ASTM Committee C21 on Ceramic Whitewares and Related Products and is the direct responsibility of Subcommittee C21.04 on Raw Materials.

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