~~Designation:C40–04~~ Designation: C40/C40M – 11

American Association State
Highway and Transportation Officials Standard
AASHTO No.: T 21

Standard Test Method for Organic Impurities in Fine Aggregates for Concrete[1]

This standard is issued under the fixed designation C40/C40M; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers two procedures for an approximate determination of the presence of injurious organic impurities in fine aggregates that are to be used in hydraulic cement mortar or concrete. One procedure uses a standard color solution and the other uses a glass color standard.

~~1.2The values given in SI units are to be regarded as the standard. The values given in parentheses are for information only.~~

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the 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. Referenced Documents

2.1 *ASTM Standards:*[2]

C33 Specification for Concrete Aggregates
C87 Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
C125 Terminology Relating to Concrete and Concrete Aggregates
C702 Practice for Reducing Samples of Aggregate to Testing Size
D75 Practice for Sampling Aggregates
D1544 Test Method for Color of Transparent Liquids (Gardner Color Scale)

3. Significance and Use

3.1 This test method is used in making a preliminary determination of the acceptability of fine aggregates with respect to the requirements of Specification C33 that relate to organic impurities.

3.2 The principal value of this test method is to furnish a warning that injurious amounts of organic impurities may be present. When a sample subjected to this test produces a color darker than the standard color it is advisable to perform the test for the effect of organic impurities on the strength of mortar in accordance with Test Method C87.

4. Apparatus

4.1 *Glass Bottles*—Colorless glass graduated bottles, approximately 240 to 470-mL ~~(8~~[8 to ~~16-oz)~~16-oz] nominal capacity, equipped with watertight stoppers or caps, not soluble in the specified reagents. In no case shall the maximum outside thickness of the bottles, measured along the line of sight used for the color comparison, be greater than 63.5 mm ~~(2.5 in.)~~[2.5 in.] or less than 38.1 mm ~~(1.5 in.).~~[1.5 in.]. The graduations on the bottles shall be in millilitres, or ounces (U.S. fluid), except that unmarked bottles may be calibrated and scribed with graduations by the user. In such case, graduation marks are required at only three points as follows:

4.1.1 *Standard Color Solution Level*~~—75 mL (2½ oz (U.S. fluid)),~~ —75 mL [2.5 oz (U.S. fluid)],

4.1.2 *Fine Aggregate Level*~~—130 mL (4½ oz (U.S. fluid)), and~~ —130 mL [4.5 oz (U.S. fluid)], and

4.1.3 *NaOH Solution Level*~~—200 mL (7 oz (U.S. fluid)).~~ —200 mL [7 oz (U.S. fluid)].

[1] This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.20 on Normal Weight Aggregates.

Current edition approved ~~Jan.~~April 1, ~~2004.~~2011. Published ~~January 2004.~~June 2011. Originally approved in 1921. Last previous edition approved in ~~1999~~2004 as ~~C40–99.~~C40–04. DOI: 10.1520/C0040-_C0040M-11.

[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.