Standard Method of Test for

Sampling, Testing, and Accepting Asphalt Plant Silos for Extended Storage of Asphalt Mixtures

SCDOT Designation: SC-T-79 (7/18)

1. SCOPE

1.1. This test method covers sampling and testing of silos used for extended storage time (up to 18 hours maximum) of asphalt mixtures.

2. REFERENCED DOCUMENT

2.1. AASHTO T 315.

2.2. SC-T-64, SC-T-75, SC-T95, SC-T-101, SCDOT Form 400.08.

3. SIGNIFICANCE AND USE

3.1. The purpose of this procedure is to ensure that an asphalt storage silo is insulated and is sealed properly to prevent air from entering into the silo allowing the asphalt mixture to oxidize or stiffen during an extended time of storage.

4. APPARATUS

4.1. Round pointed shovel; cloth sample bags; insulated cooler, metal or plastic, of sufficient size for transporting 3 bagged hot-mix asphalt samples, and 3 tamper resistant tags (Securneck 1NH or similar).

5. TEST SPECIMEN

5.1. Three bagged and sealed samples of asphalt mix obtained by the asphalt contractor from the test silo. The sample bags of asphalt mixture should weigh between 10-20 lbs. each.

6. PROCEDURE

6.1. The contractor will fill the asphalt storage silo with an approved SCDOT mix containing no more than 25% aged (recycled) binder at least 12 hours prior to sampling. No mixes containing RAS will be permitted for this procedure. Mixes that do not contain recycled asphalt pavement are preferred due to the possibly of contamination, but are not required. Production printouts must be retained to show the SCDOT inspector the next day when the silos were filled for this test. The asphalt plant will not be allowed to add any additional material to the silo until all of the hot mix is discharged and sampled the next day. The asphalt mixture that is used for this test can be used on SCDOT projects, and is subject to random sampling in accordance with SC-T-101 for that production day.

6.2. The next day, three samples shall be taken by the asphalt contractors plant technician and observed by a SCDOT Asphalt Level I or higher technician and obtained as follows:

6.3. Sample No.1 will be obtained in accordance with SC-T-62 from the first full truck-load discharged from the silo. The sample shall be placed into a cloth sample bag and sealed with a security seal by the Department Inspector. The sample bag will be marked as Sample No. 1 (bottom).

6.4. Sample No. 2 will be obtained in accordance with SC-T-62 from the truck when the silo is approximately half empty. The sample shall be placed into a cloth sample bag and sealed with a security seal by the Department Inspector. The sample bag will be marked as Sample No. 2 (middle).

6.5. Sample No. 3 will be obtained in accordance with SC-T-62 from the truck when the last full load is discharged from the silo. The sample shall be placed into a cloth sample bag and sealed with a security seal by the Department Inspector. The sample bag will be marked as Sample No. 3 (top).

Note that this procedure must be coordinated with the OMR Liquid Asphalt Testing Supervisor (803-737-6704) to assure proper arrangements have been made for testing. Samples that are delivered may be reheated and tested as the OMR work schedule deems necessary. Mixture information must be filled out onto sample cards and entered into SiteManager as necessary by the SCDOT, and will also be recorded on Form 400.08 by the Inspector and submitted along with the samples to the OMR.

6.6. The samples will be tested in accordance with SC-T-64 (recovery only), SC-T-75 (asphalt binder content), SC-T-95 (distillation of recovered material), and AASHTO T-315 (DSR - stiffness).

7. REPORT

7.1. The samples will be analyzed by using the average and the standard deviation of the three test results for recovered stiffness, and the asphalt binder content will be checked for job mix compliance. Any DSR test result found outside +/-1.5 standard deviations of the computed average will be considered an outlier sample, and the storage silo will be rejected due to inconsistent stiffness values. In the event that the samples do not meet this requirement, the contractor will be contacted and instructed to investigate the reason for root cause of the inconsistent results. If the samples fail to meet job mix criteria for asphalt content, the silo will also be rejected. If the samples are within the set guidelines above, an acceptance letter will be generated by the Asphalt Materials Manager showing that the storage silo meets SCDOT requirements. Sample information will be recorded on SCDOT Form 400.08 – Extended Silo Storage. The sample results are to be reported on SCDOT Form MD419.