

WET SIEVE ANALYSIS OF FINE AND COARSE AGGREGATE

1. SCOPE:

- 1.1. This method covers a procedure for the determination of the particle size distribution of certain fine and coarse aggregates by combining Percentage of Material Finer than a No. 200 Sieve By Use of A Pycnometer (Wash Test) (Ky Method 64-606) and Sieve Analysis of Fine and Coarse Aggregate (AASHTO T 27).
- 1.2. Application - This method shall be used for the following sizes and/or uses of aggregates: Dense Graded Aggregate Base (DGA), Crushed Stone Base (CSB), or when otherwise specified. This method does not apply to the sieve analysis of Mineral Filler. AASHTO T 37 should be used for the sieve analysis of Mineral Filler.

2. APPARATUS:

- 2.1. Sieves - Sieves which are necessary to furnish the information as required by the applicable specification. Sieves shall conform to AASHTO M 92.
- 2.2. Balance - A balance capable of weighing at least 7000 grams, sensitive and accurate to one gram.
- 2.3. Pycnometer - A plastic or glass jug with a capacity of approximately 1 gallon fitted with a pycnometer top. The jug must maintain a constant volume during test.
- 2.4. Wetting Agent - Calgon powder is preferred.
- 2.5. Funnel
- 2.6. Towels
- 2.7. Syringe
- 2.8. Sample Splitter
- 2.9. Container suitable for soaking aggregates.
- 2.10. Drying Oven - An oven capable of maintaining a constant temperature of $230 \pm 9^{\circ}\text{F}$.

2.11. Drying Pans

2.12. Mechanical Shaker (Optional)

3. SAMPLE:

3.1. Field samples shall be obtained in accordance with AASHTO T 2.

3.2. The minimum field sample mass and the mass of the test portion are listed in the following table. The sample shall be reduced in size in accordance with AASHTO T 248.

NOMINAL MAXIMUM SIZE	MINIMUM MASS OF FIELD SAMPLE	MINIMUM MASS OF TEST PORTION
No. 4 or less	10 lbs.	1000 grams
3/8"	10 lbs.	1500 grams
1/2"	20 lbs.	2500 grams
3/4"	30 lbs.	3000 grams
1"	50 lbs.	5000 grams
1 1/2"	70 lbs.	7000 grams
2"	90 lbs.	15000 grams
2 1/2"	125 lbs.	20000 grams

3.3. When the size of the test portion exceeds the capacity of the pycnometer (greater than approximately 3500 grams for most aggregates) the test portion shall be divided into as many approximately equal parts by mass as necessary to insure against overfilling of the pycnometer. All divided parts shall be tested.

3.4. Retain unused field sample until all testing is completed.

4. PROCEDURE:

4.1. The test procedure will consist of two distinct parts; the minus No. 200 wash test and the dry sieve analysis, in that order.

KM 64-620-086

- 4.2. Perform current KM 64-606 Percentage of Material Finer than a No. 200 Sieve by Use of a Pycnometer (Wash Test).
- 4.3. Retain and combine all material from all portions tested. Dry to a constant mass.
- 4.4. Perform AASHTO T-27 Sieve Analysis of Fine and Coarse Aggregates on material retained from section 4.3

5. CALCULATIONS:

- 5.1. The percent passing each sieve on the wet sieve analysis is calculated as follows:

$$P1 = (((100-P2)/100) \times P3) + P2$$

Where

P1 = Percent passing each sieve on the wet sieve analysis

P2 = Percent minus 200 sieve as determined by KM 64-606

P3 = Percent passing each sieve as determined in the dry sieve analysis

6. REPORT:

- 6.1. The results of the wet sieve analysis shall be reported as the total percentages passing each sieve. Percentages shall be reported to the nearest whole number.
- 6.2. When test results are obtained that do not fall within specification limits, the failure must be verified. The unused field sample is to be tested in the same manner as the original test sample. When the original and the verification test results are reasonably close, they are to be averaged to obtain a single reportable test result. When the two test results vary considerably further investigation will be necessary. Investigation may include checking test equipment, reviewing sampling and splitting practices, methods of calculations and/or obtaining an additional field sample to test

APPROVED

DIRECTOR
DIVISION OF MATERIALS

DATE

02/21/08

APPROVED

Director
DIVISION OF MATERIALS

DATE

06/01/06

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