



# Standard Test Procedures Manual

Section: ASPHALT MIXES

Subject: SIEVE ANALYSIS

## 1. SCOPE

### 1.1. Description of Test

This method describes the procedure for determining the particle size from recovered aggregate after the extraction test.

## 2. APPARATUS

### 2.1. Equipment Required

Balance - sensitive to 0.1 g

Sieves - Canadian metric standard square mesh sieves of size as required for the type of material being tested.

Mechanical sieve shaker.

Containers - pans suitable for handling and washing the samples.

Gas or electric stove.

Chemicals - wetting agent such as household detergent.

## 3. PROCEDURE

### 3.1. Test Procedure

Dry the aggregate recovered from the extraction test to a constant weight and record weight to nearest 1.0 g as dry weight of sample.

Add 30 ml of wetting agent to the dry aggregate and add water to just cover the sample and boil for a few minutes.

Cool the contents of the container by adding more water and agitate vigorously. Agitation should be sufficiently vigorous to separate all particles finer than the 75 mm sieve from

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the coarse particles and to bring all fine material into suspension in the wash water. Slowly pour the wash water over the 71 mm sieve taking care to avoid spilling coarse particles on the wash sieve.

Repeat until the wash water is clear.

Return material retained on the 71 mm sieve to the washed sample.

Dry washed sample to constant weight at temperature not exceeding 110° C and record as dry weight after washing.

Nest the sieves with the finest sieve above the bottom pan and the coarsest sieve at the top.

Place the dried sample on the top sieve, put sieves in mechanical sieve shaker, and shake for five minutes.

Weigh material in the pan below the 71 mm sieve and record as the weight passing this sieve. Add the material resting on the 71 mm sieve to the material on the balance pan and record the total as the weight passing the next larger sieve. Repeat the procedure until all the material from each larger sieve has been weighed.

## 4. RESULTS AND CALCULATIONS

### 4.1. Collection of Test Results

The collection of test results should be recorded on the required department form.

### 4.2. Calculations

Calculate the sieve analysis as shown in the following example:

#### 4.2.1. Wash Sieving

Dry Weight of Sample	1000.0 g
Dry Weight After Washing	950.0 g
Weight of Material Washed Through 71 mm Sieve	50.0 g

### 4.2.2. Dry Sieving

Weight Passing	18.0 mm	950.0 g
	12.5 mm	800.0 g
	5.0 mm	550.0 g
	2.0 mm	350.0 g
	900 $\mu$ m	200.0 g
	400 $\mu$ m	150.0 g
	160 $\mu$ m	50.0 g
	71 $\mu$ m	5.0 g

### 4.2.3. Adjusted Weight & Percent Passing

Add weight of material washed through the 71 mm sieve to the weight passing each sieve before calculating percentages.

Sieve 18.0 mm	950.0 + 50.0 = 1000.0 g = 100%
12.5 mm	800.0 + 50.0 = 850.0 g = 85%
5.0 mm	550.0 + 50.0 = 600.0 g = 60%
2.0 mm	350.0 + 50.0 = 400.0 g = 40%
900 $\mu$ m	200.0 + 50.0 = 250.0 g = 25%
400 $\mu$ m	150.0 + 50.0 = 200.0 g = 20%
160 $\mu$ m	50.0 + 50.0 = 100.0 g = 10%
71 $\mu$ m	5.0 + 50.0 = 55.0 g = 5.5%

### 4.3. Report of Results

Report the percent passing each sieve on the required department form.