

## GDT 38

---

### A. Scope

For a complete list of GDTs, please see the Table of Contents

Use this test method to determine the particle size distribution of fine and coarse aggregates extracted from bituminous mixtures.

### B. Apparatus

The apparatus consists of the following:

1. **Balance:** The balance or scale shall be capable of weighing the sample without additional splitting or distribution and have a resolution of 0.1 gram.
2. **Mechanical Sieve Shaker:** The Mechanical sieving device shall create a lateral, vertical, and jarring motion to keep the sample particles moving continuously over the surface of the sieve.
3. **Sieves:** Use woven-wire cloth sieves that conform to the “Standard Specification for Sieves for Testing Purposes,” AASHTO M 92. Mount sieves with square openings on substantial frames constructed to prevent material loss during sifting. Select sieve sizes to furnish the information required by the Standard Specifications for the material to be tested.
4. **Oven or Stove:** An oven or stove of suitable size capable of maintaining a standardized temperature for the purpose of drying the aggregate, excluding Ignition Oven type furnaces.

### C. Sample Size and Preparation

Use the entire sample of aggregate from which the bituminous material has been extracted (see GDT 83 or GDT 125).

**NOTE:** If utilizing GDT-125 for determining asphalt content, the extracted aggregate containing at least the aggregate passing the #8, (2.36mm) sieve and finer material must be subjected to washing over a No. 200 sieve in accordance with AASHTO T-11.

### D. Procedures

1. Dry the aggregate utilizing a vented oven or stove with a vented hood to a constant weight and allowed to cool to room temperature.
2. Weigh the sample.
3. Nest the sieves in order of decreasing size of opening from top to bottom and place the sample in the top sieve. The sample shall be classified by particle sizes utilizing the required sieves outlined in the specifications for the material type being tested. Care should be taken to insure that sieve diameter is adequate. Limit the quantity of material on a given sieve by adding additional sieves as necessary so as all particles have the opportunity to reach the sieve openings a number of times during the sieving operation.
  - a. Do not turn or manipulate fragments in the sample through the sieve by hand.
4. Agitate the sieves by hand or mechanical shaker for about 10 minutes or until less than 1 percent by weight of the total sample passes any sieve during 1 minute.

Note: When using a mechanical sieve shaker, periodically test the sieve's shakers accuracy against the results of sifting by hand. Make necessary adjustments in sifting time and/or repairs as required by manufacturer. This shall be included as part of the equipment review process for annual plant inspection.
---

Note: When sieving by hand hold individual sieves in a slightly inclined position in one hand. Strike the side of the sieve sharply and with an upward motion against the heel of the other hand at a rate of about 150 times per minute, turning the sieve about one-sixth of a revolution at intervals of about 25 strokes.

5. Record the accumulative weight of the material retained on each sieve.

## E. Calculations

Calculate the percent passing each sieve as follows:

$$P = 100 - \frac{R}{T} \times 100$$

where:

P = Accumulative percent passing sieve by weight of total aggregate

R = Accumulative weight of mineral aggregate retained on sieve

T = Total weight of extracted mineral aggregate

## F. Report

Report the results of the sieve analysis as accumulated percentages passing each sieve. Report percentages to the nearest 0.1 percent on the (TM-140, Site Manager -appropriate Form(s)).