

Colorado Procedure 46-08

Standard Method of Test for

Determination of Gradation of Aggregate in a Core from Asphalt Pavement

1. SCOPE

- 1.1 This Procedure is part of the process to determine if an area designated by the Engineer as questionable is segregated. Five, 10" cores are taken at random locations (CP 75) to represent the segregated area. This procedure removes the surface areas (containing cut aggregate) from each core. The material is then combined, split, asphalt cement is removed in the ignition oven, and finally gradation is determined. Key sieve sizes of this gradation are compared to average field gradation or CDOT Form #43 gradations to determine if the area is segregated as defined by the specification.

2. REFERENCED DOCUMENTS

2.1 Colorado Procedure:

- CP 31 Sieve Analysis of Aggregates
- CP 55 Reducing Field Samples of Hot Mix Asphalt to Testing Size
- CP 75 Stratified Random Sampling of Materials

2.2 Colorado Procedure – Laboratory:

- CP-L 5120 Determination of the Asphalt Binder Content of Bituminous Mixtures by the Ignition Method

3. APPARATUS

- 3.1 *Oven* - Capable of holding five pans with cores, a 6" ID template (core barrel, pipe section, etc), and capable of maintaining 230°F.
- 3.2 *Five Pans* - Each large enough to hold a 10" core.
- 3.3 *6" ID Template* - Core barrel, pipe section, etc.

4. PROCEDURE

- 4.1 Remove foreign material from the cores. Separate the lift to be tested from the other lift(s). Freezing of the cores and the use of a chisel may facilitate this process.
- 4.2 Place each core in a separate pan and place all pans in a 230°F oven for two hours or until the core is soft enough for the following separation procedure. Heat a 6" ID (inside diameter) template. Remove each specimen and pan, one at a time. Remove the outer layer of each core in the following manner. Center the 6" ID template over the 10" core and pass the template vertically down the entire specimen. Maintain downward pressure on the core barrel with one hand and remove all the trimmed material with the other hand. Lift the core barrel to reveal the material. Place the material in the container to be used for combining and remixing.
- 4.3 Repeat this process with the other four cores. Mix the material from the five cores.
- 4.4 Following CP 55, split the combined material to result in two portions of the appropriate size for ignition oven testing.
- 4.5 Remove asphalt cement per CP-L 5120.
- 4.6 Determine gradations per CP 31.
- 4.7 Apply aggregate gradations correction factors per CP-L 5120.