Method of Test For
THEORETICAL MAXIMUM SPECIFIC GRAVITY OF ASPHALT CONCRETE MIXTURES
DOTD DESIGNATION: TR 327-14

Scope

1. This method of test determines the theoretical maximum specific gravity and density of uncompacted bituminous paving mixtures at 25°C.

2. Reference Documents
   A. DOTD S 201 – Sampling Asphaltic Materials
   B. DOTD S 203 – Sampling Asphaltic Mixtures
   C. AASHTO T 248 – Reducing Samples of Aggregate to Testing Size
   D. AASHTO T 209 – Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt (HMA)
   E. DOTD TR 3xx – Asphalt Volumetric Calculations

Apparatus

1. Use AASHTO T209, Section 6-APPARATUS with the following modifications
   A. The pycnometer capacity shall be approximately 4500 mL.

2. Worksheet – Theoretical Maximum Specific Gravity Worksheet (03-22-3095), Asphaltic Concrete Plant Report, or Superpave Asphaltic Concrete Plant Report

Sample

1. Use AASHTO T209, Section 6-SAMPLING with the following modifications
   A. Minimum sample sizes shall be determined according to Table 1
   B. Field core samples are allowed if the minimum sample size is met according to Table 1
   C. If a sample is not soft enough to separate with a spatula or trowel, place the material in an oven at 160±5°C (320±9°F) until a proper level of workability is obtained.

Procedure

1. Use AASHTO T209, Section 10 and 11, METHOD A-MECHANICAL AGITATION PROCEDURE
2. Use AASHTO T209 Section 13.1, Mass Determination in Water

Report

1. Report the Theoretical Maximum Specific Gravity ($G_{mm}$) to the nearest 0.001.

Normal Test Reporting Time

Normal test reporting time is 4 hours.
<table>
<thead>
<tr>
<th>Nominal Maximum Size Aggregate in Mix, in.(mm)</th>
<th>Minimum Sample Size, g</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Loose Mix</td>
</tr>
<tr>
<td>1½ (37.5)</td>
<td>4000</td>
</tr>
<tr>
<td>1 (25.0)</td>
<td>3000</td>
</tr>
<tr>
<td>¾ (19.0)</td>
<td>2000</td>
</tr>
<tr>
<td>½ (12.5)</td>
<td>1500</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>1000</td>
</tr>
<tr>
<td>No. 4 (4.75)</td>
<td>500</td>
</tr>
</tbody>
</table>