

**MAXIMUM SPECIFIC GRAVITY
OF
HOT MIX ASPHALT
AASHTO T 209**

APPARATUS

- [] Balance, sufficient capacity for sample, readable to 0.1 g or better, in accordance with AASHTO M 231
- [] Volumetric Container
 - [] Capacity is 2000 – 10,000 mL
 - [] Diameter of bowl is 7.1 to 10.2 in.
 - [] Height of bowl is minimum 6.3 in.
 - [] Small piece of No. 200 sieve wire mesh covering hose opening
- [] Verified thermometer with subdivisions and maximum scale error of 0.9°F
- [] Oven maintained at $221 \pm 9^\circ\text{F}$
- [] Vacuum system capable of subjecting contents to partial vacuum of 25.0-30.0 mm Hg
- [] Electric fan
- [] Arrangement of testing apparatus in accordance with Figure 1 (One or more filter flasks for a water vapor trap may be used)

PROCEDURE

- [] Weight of sample as follows (samples larger than capacity of container may be divided into suitable increments, tested, and the results combined)

Nominal Maximum Aggregate Size	Minimum Weight of Sample, g
3/8 in.	1000
1/2 in.	1500
3/4 in.	2000
1 in.	2500
1 1/2 in.	4000

- [] Particles of sample separated without fracturing aggregate (Sample may be placed in large pan and warmed in oven until workable)
- [] Fine aggregate particles not larger than 1/4 in.
- [] Dried to constant weight (Note 1) in oven at $221 \pm 9^\circ\text{F}$

Note 1 -- Constant weight is defined as the weight at which further drying at the required drying temperature does not alter the weight by more than 0.05 percent

- [] Sample at room temperature
- [] Sample placed in tared container, weighed, and net weight determined
- [] Water at approximately 77°F added to cover sample completely
- [] Entrapped air removed using partial vacuum (25.0–30.0 mm Hg) for 15 ± 2 min
- [] Container and contents agitated continuously by mechanical device, or manually by vigorous shaking at intervals of about 2 minutes
- [] Vacuum released with bleed valve by increasing pressure at a rate not to exceed 8 kPa per second

Weighing in Air

- [] Container filled with water
- [] Contents at 77 ± 1.8°F or appropriate correction applied
- [] Weight of filled container determined 10 ± 1 min after removal of entrapped air is completed
- [] Maximum specific gravity is calculated correctly to three decimal places (0.000) as follows:

$$\text{Maximum Specific Gravity} = \frac{A}{A + D - E}$$

where:

- A = weight of dry sample in air, g
- D = weight of container filled with water, g
- E = weight of container filled with water and sample, g

Weighing in Water

- [] Container and sample suspended in water bath and weight determined after 10 ± 1 min.
- [] Container emptied immediately following the weighing of the container and sample
- [] Container suspended in water without delay and weight determined
- [] Maximum specific gravity calculated correctly to three decimal places (0.000) as follows:

$$\text{Maximum Specific Gravity} = \frac{A}{A - (C - B)}$$

where:

- A = weight of dry sample in air, g
- B = weight of container in water, g
- C = weight of container and sample in water, g

Supplemental Procedure

- Sample spread before an electric fan to remove surface moisture
- Conglomerations of mixture broken by hand
- Sample stirred intermittently during drying
- Sample weighed at 15 minute intervals until surface dry (Note 2)

Note 2 -- Sample is considered surface dry when the loss in weight is less than 0.05 percent between 15 minute intervals

- Maximum specific gravity calculated correctly to three decimal places (0.000) as follows:

Weighing in Air (Water at 77 ± 1.8°F)

$$\text{Maximum Specific Gravity} = \frac{A}{A_1 + D - E}$$

Weighing in Water (No Water Temperature Requirement)

$$\text{Maximum Specific Gravity} = \frac{A}{A_1 - (C - B)}$$

where:

- A = weight of dry sample in air, g
- A₁ = weight of surface-dry sample, g
- B = weight of container in water, g
- C = weight of container and sample in water, g
- D = weight of container filled with water, g
- E = weight of container filled with water and sample, g

- NA - Not Applicable
- X - Requires Corrective Action
- √ - Satisfactory

Acceptance Technician

INDOT

Date

Comments: _____