

## Procedure Checklist

### FM 1-T 209: Maximum Specific Gravity of Bituminous Paving Mixtures

		P	F	N/A
<b>Calibration of Flask</b>				
1.	Verify flask calibration. Perform flask calibration once per month or sooner if the dry weight of the flask changes by more than 0.4 g since the last calibration. FM 1-T 209, Section 4.			
2.	Fill the flask fully with water. The temperature of the water must be $77^{\circ} \pm 2^{\circ}\text{F}$ ( $25 \pm 1^{\circ}\text{C}$ ). FM 1-T 209, Section 4.			
3.	Use a cover plate to ensure accurate filling of the flask. FM 1-T 209, Section 4.			
4.	Check the flask for entrapped air beneath the cover plate. FM 1-T 209, Section 4.			
5.	Thoroughly dry the outside of the flask. No reference.			
6.	Record the date, flask identification, and calibrated weight. No reference.			
<b>Preparing the Specimens</b>				
7.	Condition the sample for 1 hour $\pm$ 5 minutes at compaction temperature $\pm 9^{\circ}\text{F}$ . Specification 334-5.1.1.			
8.	Separate the particles taking care not to fracture the mineral particles (conglomerates less than 1/4 in.). FM 1-T 209, Section 6.1.			
9.	Cool the specimens to room temperature. FM 1-T 209, Section 6.2.			
<b>Adding the Specimens to the Flasks</b>				
10.	Add the specimen to the flask. FM 1-T 209, Section 6.2.			
11.	Weight the flask and specimen. Record. FM 1-T 209, Section 6.2.			
12.	Shake the flask until the mix moves freely. FM 1-T 209, Section 6.2.			
13.	Use the correct solution (1 ml of 10% solution in 1000 ml of water) of wetting agent in water. FM 1-T 209, Section 6.2, Note 1.			
14.	Add sufficient water to cover the specimen. FM 1-T 209, Section 6.2.			
<b>Applying Vacuum to the Flasks</b>				
15.	Place the flasks on an orbital shaker. FM 1-T 209, Section 3.7.			
16.	Vacuum pressure of $30 \pm 2$ mm Hg is reached within 2 minutes and is continuously applied throughout the test. FM 1-T 209, Section 6.3.			
17.	Once vacuum is achieved, agitate the specimens at $270 \pm 10$ rpm for $15 \pm 2$ minutes. FM 1-T 209, Section 6.3.			
18.	Release the vacuum. Remove the flasks from the shaker. Slowly fill each flask with water to within 0.5 in. of the top of the flask. Determine the water temperature in each flask. Verify the temperature is within the allowable range, $77.0 \pm 2.0^{\circ}\text{F}$ . Adjust as needed. FM 1-T 209, Section 6.4.			
19.	If an electronic control device is used for steps 17-19, verify that it is used and operating correctly. FM 1-T 209, Section 3.8.			

<b>Obtaining the Flask, Specimen and Water Weight</b>				
20.	Between 9 and 11 minutes after releasing the vacuum, completely fill the flasks with water. Use a cover plate. FM 1-T 209, Section 6.5.			
21.	Check the flask for air bubbles. No reference.			
22.	Wipe excess moisture from the exterior of the container and cover plate. FM 1-T 209, Section 6.5.			
23.	Determine the weight within $10 \pm 1$ minutes after the vacuum was released and record the weight. This is the final step in the test procedure if the surface dry portion of the test is not to be performed. FM 1-T 209, Section 6.5.			
<b>Calculation of Gmm</b>				
24.	Calculate the maximum specific gravity correctly. FM 1-T 209, Section 7.1.			
25.	Do the results meet the acceptable precision values? FM 1-T 209, Section 8.1.			

**Comparison Criteria: Gmm =  $\pm 0.016$  (between labs)  
 $\pm 0.013$  (within lab)**

**Remarks:**

Date: \_\_\_\_\_ Technician: \_\_\_\_\_ IA Observer: \_\_\_\_\_

Technician's e-mail address: \_\_\_\_\_

Employer's / supervisor's e-mail address: \_\_\_\_\_