

NEW SUPERPAVE
PROFICIENCY EXAMINATION

Revised 1-27-22

APPLICANT'S NAME _____

EMPLOYER _____

AASHTO T 312: Specimen Compaction

Pre-Verification Checklist: (Note: State operation & frequency).	1	2	R
State required frequency of verification & calibration:			
Verify on a cold (powered up for 10-15 minutes) and clean machine 1) monthly during use, or 2) if gyro is moved			
Calibrate: 1) annually, or 2) if verification fails			
Pre-Compaction Checklist: (Note: Proctor will tell you the type of specimen to be molded, you will explain the setting for the machine for that operation.)			
State & verify required parameters for compaction:			
1. Verify 150 mm specimen diameter			
2. Verify compaction pressure = 600 kPa			
State the following:			
3. For Volumetric pucks, SET GYRATIONS = N_{des} (from JMF)			
4. For TSR pucks, set SPEC. HT. (specimen height) = 95.0 mm			
Compaction Procedure: (Mold specimen, proctor can assist with machine operation as needed.) CAUTION!! Use PPE, everything is HOT!			
5. Assemble mold & bottom plate (if necessary) & insert paper disk			
6. Place mix in mold and level off top surface of mix			
7. Insert paper disk, then place top plate in mold, beveled side up			
8. Place mold in machine so that rotational cog is at 6 o'clock, then rotate counter clockwise to at least 3 o'clock; close door			
9. Press START and let compaction proceed			
10. Once ram is parked and " <u>MACHINE READY</u> " light is ON, open door and move mold to puck extrusion station			
11. Partially extrude puck so top plate clears mold rim; remove top plate and paper disk.			
12. Depending on the type of mix, expose as much of the puck as possible (avoid collapse) through further extrusion and allow to cool			
13. After minimum cooling period to assure puck stability, finish extruding puck, carefully set puck upside-down on cooling rack, and remove 2 nd paper disk ASAP			
14. Mark the puck for identification purposes			
PASS?			
FAIL?			

Proctor _____ Date _____

Reviewer _____ Date _____

AASHTO T 308: Asphalt Content by Ignition; Method A

	Trial#	1	2	R
Pre-Production Oven Parameters Checklist: (Demonstrate oven setup)				
Input required parameters for routine production of a particular mix:				
1. Enter TEMP setpoint [chamber temperature]				
2. Enter CALIB. FACTOR [binder (aggregate) correction factor]				
Routine Production Ignition Oven Procedure: (Demonstrate test procedure with proctor instruction)				
3. Obtain weight of empty basket assembly				
4. Place ~½ of hotmix sample in each basket; move mix ~¾" away from sides; re-assemble basket. Cool to room temperature.				
5. Obtain total weight of sample plus basket then calculate initial weight of hotmix sample				
6. Enter initial sample WEIGHT				
7. Zero oven scale (push the number 0)				
8. After putting on safety gloves, face shield, etc., carefully load sample into oven, making sure basket is not touching walls; close door				
9. Check total weight: oven vs. exterior scale: No good if > 5 grams difference: Is it?				
10. Initiates burn-off program by pressing START/STOP				
11. After burn-off stops, remove and examine paper readout				
12. Again, with safety gear on, open oven door, remove basket & place on cooling rack. Cool to room temperature.				
13. Determine and record basket + specimen weight, then calculate and record final specimen weight (for manual calculations and/or verification of %AC).				
14. Obtain Calibrated %AC through calculations (NOTE: in the field, this value will automatically be on the printout tape)				
15. Correct the Calibrated %AC for moisture				
	PASS?			
	FAIL?			

Proctor _____ Date _____

Reviewer _____ Date _____

AASHTO T 209: Theoretical Maximum Specific Gravity (Rice Test): “Weigh In Water” Method

	Trial#	1	2	R
Pre-Procedure Checklist: (State for proctor operation and frequency)				
State the following requirements for routine testing of a particular mix:				
1. Pycnometer calibration required daily				
2. Sample moisture content must be <0.1%: Verify by a) oven drying until mass repeats within 0.1% OR b) use results of AASHTO T 329				
3. Perform “dry-back” procedure if <u>ANY coarse aggregate fraction</u> has absorption > 2.0% (use surface-dry weight “A2” in place of “A” in the denominator of the non-dry-back Gmm equation				
Routine Rice Test Procedure: (Demonstrate procedure, proctor will shorten time frames where needed.)				
4. Separate particles while cooling sample: 1) Don’t break aggregate; 2) Reduce sand-binder clumps to ≤ ¼”; 3) Cool until mix is at room temperature				
5. Determine and record empty weight of the pycnometer (without lid). Place and level sample in pycnometer. Record weight of sample + pycnometer. Calculate and record oven-dry weight of sample [A]				
6. Cover sample with approximately 1” of bath water				
7. Subject to specified vacuum while agitating for 15 ± 2 minutes				
8. Very slowly release vacuum, then disassemble apparatus				
9. Confirm that water bath temperature is in spec and water is at default level (are they?), then zero out the weigh-in-water system.				
10. Being careful not to expose the mix to the air, suspend pycnometer (without lid) and contents in water bath				
11. Determine and record combined mass of pycnometer and contents [C] after 10 ± 1 minutes of immersion				
12. After recording C, remove pycnometer from water bath, completely remove the contents, reset the weigh-in-water system to its default condition, re-suspend empty pycnometer (without lid) in water bath, then determine and record mass [B] after steady-state has been achieved (tank stops overflowing).				
13. Calculate non-dry-back Gmm = A / (A + B – C): Nearest 0.001?				
14. Calculate dry-back Gmm = A / (A2 + B – C): Nearest 0.001?				
PASS?				
FAIL?				

Proctor _____ Date _____

Reviewer _____ Date _____

AASHTO T 209: Theoretical Maximum Specific Gravity (Rice Test): “Weigh In Air” Method

	Trial#	1	2	R
Pre-Procedure Checklist:				
State the following requirements for routine testing of a particular mix:				
1. Pycnometer calibration required daily				
2. Sample moisture content must be <0.1%: Verify by a) oven drying until mass repeats within 0.1% OR b) use results of AASHTO T 329				
3. Perform “dry-back” procedure if <u>ANY coarse aggregate fraction</u> has absorption > 2.0% (use surface-dry weight “A2” in place of “A” in the denominator of the non-dry-back Gmm equation				
Routine Rice Test Procedure:				
4. Separate particles while cooling sample: 1) Don’t break aggregate; 2) Reduce sand-binder clumps to ≤ ¼”; 3) Cool until mix is at room temperature				
5. Determine and record empty weight of the pycnometer (without lid). Place and level sample in pycnometer. Record weight of sample + pycnometer. Calculate oven-dry weight of sample [A]				
6. Cover sample with approximately 1” of bath water				
7. Subject to specified vacuum while agitating for 15 ± 2 minutes				
8. Immediately after the 15 ± 2 minute time period (i.e. the vacuum application stops), very slowly release vacuum.				
9. Start 10 ± 1 minute time period in which the final weight must be obtained (i.e. finish the test). Disassemble apparatus.				
10. Being careful not to expose the mix to the air, slowly submerge pycnometer in water bath at the specified temperature (is it?) and carefully place capillary lid on pycnometer				
11. Just prior to end of 10 ± 1 minute time period, remove pycnometer, dry off the exterior, then determine and record total weight [E]				
12. After recording E, completely remove contents, re-submerge empty pycnometer in water bath, place capillary lid on pycnometer, wait 10 ± 1 minutes for temperature to stabilize, remove pycnometer, dry off the exterior, then determine and record total weight [D]				
13. Calculate non-dry-back Gmm = $A / (A + D - E)$: Nearest 0.001?				
14. Calculate dry-back Gmm = $A / (A2 + D - E)$: Nearest 0.001?				
PASS?				
FAIL?				

Proctor _____ Date _____

Reviewer _____ Date _____