

Aggregate Technician

2025

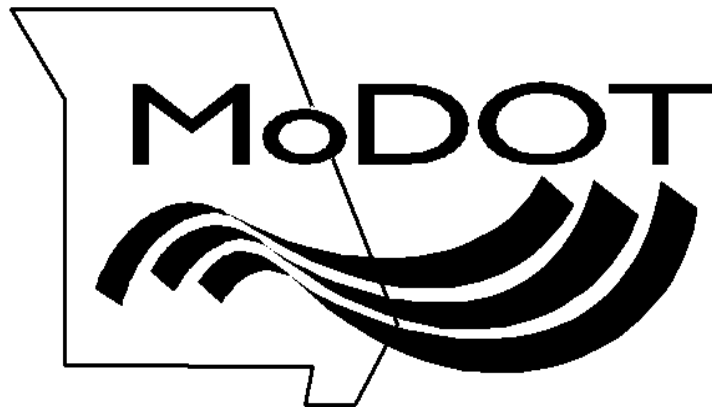
Part One

Proficiency Pack

Date: _____

Name: _____

Employer: _____



PART ONE

AASHTO R90: Sampling of Aggregates PROFICIENCY CHECKLIST

Revised on 08/31/2020

Applicant: _____

For all QC/QA or Acceptance sampling, record the time or location or both.

Conveyor Belt Sampling – Sampling Device – Coarse/Mixed Aggregate	Trial 1	Trial 2
NOTE: Automatic belt samplers may be used if properly maintained and inspected.		
1. Plant was operating at the usual rate.		
2. Random samples taken from a conveyor belt discharge taken from production. (avoid beg. or end)		
3. Sample taken from entire cross-section once in each direction without overflowing the device.		
4. Included all material from the sampling device into a clean empty container.		
5. Obtained 1 or more increments to form a field sample.		
Conveyor Belt Sampling – Template - Coarse/Mixed Aggregate		
1. Conveyor belt stopped, locked and tagged out.		
2. Random samples taken from production. - Avoided sampling at the beginning or end of a run		
3. Template placed on the belt to yield one increment.		
4. All material inside the template scooped into a proper container including fines.		
5. Obtained 1 or more increments to combine for a field sample.		
Stockpile Sampling – Flat Board – Coarse/Mixed Aggregate		
1. Created a horizontal surface with a vertical face.		
2. Inserted board vertically against a vertical face to prevent sloughing.		
3. Discarded sloughed material.		
4. Obtained a sample from the horizontal surface close to the vertical face.		
5. Obtained at least one increment from; the top third, the middle third, and the bottom third of the stockpile.		
6. Combined to form a field sample.		
Stockpile Sampling - Sampling Tube - Fine Aggregate Only		
1. The outer layer of the stockpile removed.		
2. Obtained a minimum of 5 random tube insertions on the stockpile.		
3. Combined to form a field sample.		
Stockpile Sampling – Loader – Coarse/Mixed Aggregate		
1. Segregation avoided by re-blending the pile.		
2. Loader entered the pile with bucket at least 1 foot above the ground.		
3. Discarded first bucketful.		
4. Re-entered stockpile to obtain a full loader bucket of material		
5. Bucket tilted just enough for free flow, created small sampling pile. (Can go back for more).		
6. Back dragged the small pile to form a sampling pad.		
7. Randomly collected a min. of 3 increments with a shovel at least 1 foot from sample pile edge.		
8. Inserted the shovel excluded underlying material, placed in a clean dry container		
9. Combined increments to form a field sample.		
Roadway Base Sampling – In-Place – Coarse/Mixed Aggregate		
1. Obtained at least 1 increment, using random number set for a QC/QA sample before compaction.		
2. If not a QC/QA sample, obtained at least 1 or more random increments for a field sample.		
3. Used a square nose shovel and or a metal template to mark the area.		
4. Shoveled the full depth of the material excluding underlying material.		
5. Combined increments to form a field sample.		

PASS PASS

Examiner: _____ Date: _____

FAIL FAIL

AASHTO R76: Reducing Field Samples of Aggregate to Testing Size PROFICIENCY CHECKLIST

Revised on 10/14/2020

Applicant: _____

Trial #	1	2
Method A – Splitting		
(8 chutes for Coarse CA, 12 chutes for Fine FA)		
1. Material in an air-dried condition.		
2. Adjusted the openings to be 50% larger than the largest particle.		
3. Material spread uniformly on feeder from edge to edge.		
4. Rate of feed slow enough so that sample flows freely through chutes.		
5. Material in one receptacle re-split until desired weight was obtained.		

Method B - Quartering		
1. Moist sample placed on clean, hard, level surface.		
2. Mixed by turning over at least 3 times with shovel.		
3. Conical pile formed.		
4. Pile flattened to uniform thickness and diameter of 4-8 times thickness		
5. Divided into 4 equal portions with shovel or trowel.		
6. Removed two diagonally opposite quarters, including all fines.		
7. Remaining quarters, mixed and quartered until reduced to desired sample size.		
NOTE: The sample may be placed upon a canvas quartering cloth and a stick or pipe may be placed under the tarp to divide the pile into quarters.		

Method C – Miniature Stockpile (Damp Fine Aggregate Only)		
1. Moist fine aggregate sample placed on clean, hard, level surface.		
2. Material thoroughly mixed by turning over three times.		
3. Small stockpile formed.		
4. Obtain at least 5 samples taken at random with sampling thief, small scoop, or spoon, combined to attain appropriate sample size		

PASS PASS

FAIL FAIL

Examiner: _____ Date: _____

AASHTO T 255: Total Evaporable Moisture Content of Aggregate by Drying PROFICIENCY CHECKLIST

Revised on 12/06/2019

Applicant: _____

Employer: _____

	Trial #															
1. Representative test sample secured	1	2														
2. Test sample mass conforms to following from the T255 AASHTO Table:																
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Nominal Maximum Size of Aggregate in. (mm)</th> <th style="text-align: center;">Minimum Sample Mass Lbs. (g.)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">#4 (4.75)</td> <td style="text-align: center;">1.1 (500)</td> </tr> <tr> <td style="text-align: center;">3/8" (9.5)</td> <td style="text-align: center;">3.3 (1,500)</td> </tr> <tr> <td style="text-align: center;">1/2" (12.5)</td> <td style="text-align: center;">4.4 (2,000)</td> </tr> <tr> <td style="text-align: center;">3/4" (19.0)</td> <td style="text-align: center;">6.6 (3,000)</td> </tr> <tr> <td style="text-align: center;">1" (25.0)</td> <td style="text-align: center;">8.8 (4,000)</td> </tr> <tr> <td style="text-align: center;">1 1/2" (37.5)</td> <td style="text-align: center;">13.2 (6,000)</td> </tr> </tbody> </table>	Nominal Maximum Size of Aggregate in. (mm)	Minimum Sample Mass Lbs. (g.)	#4 (4.75)	1.1 (500)	3/8" (9.5)	3.3 (1,500)	1/2" (12.5)	4.4 (2,000)	3/4" (19.0)	6.6 (3,000)	1" (25.0)	8.8 (4,000)	1 1/2" (37.5)	13.2 (6,000)		
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1 1/2" (37.5)	13.2 (6,000)															
3. Mass determined to the nearest 0.1%																
4. Loss of moisture avoided prior to determining the mass																
5. Sample dried by a suitable heat source																
6. If heated by means other than a controlled temperature oven, is sample stirred to avoid localized overheating																
7. Sample dried to constant mass and mass determined to nearest 0.1%																
8. Moisture content calculated by: $\% \text{ moisture} = \frac{\text{wet sample mass} - \text{dried sample mass}}{\text{dried sample mass}} \times 100$																

PASS PASS

FAIL FAIL

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AASHTO T11: Materials Finer Than No. 200 by Washing PROFICIENCY CHECKLIST

Revised on 10/14/2020

Applicant: _____

Trial #	1	2
1. Test sample dried to constant mass at 230 ± 9°F (110 ± 5°C).		
2. Test sample allowed to cool, and mass determined to 0.1%.		
3. #200 sieve checked for damage. Cover the #200 with a #8 or #16 sieve.		
4. Sample placed in a container and covered with water.		
5. Wetting agent added. (optional)		
6. Sample and contents of container vigorously agitated. Note: Mechanical washers maximum time is 10 min of washing.		
7. Wash water poured through the sieve nest.		
8. Wash water free of coarse particles.		
9. Operation continued until wash water is clear.		
10. Material on sieves returned to washed sample.		
11. Excess water decanted from washed sample only through the #200 sieve.		
12. Washed aggregate dried to constant mass at 230 ± 9°F (110 ± 5°C).		
13. Washed aggregate mass cooled and determined to 0.1%.		
14. Calculation: % less than #200 = $\frac{\text{Orig. dry mass} - \text{Final dry mass}}{\text{Orig. dry mass}} \times 100$		

PASS PASS

FAIL FAIL

Examiner: _____ Date: _____

AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregate

PROFICIENCY CHECKLIST

Revised on 12/06/2019

Applicant: _____

Trial#	1	2
Fine Aggregate		
1. Reduce per AASHTO R76		
2. Minimum sample mass 500 g		
Coarse Aggregate		
1. Reduce per AASHTO R76 used sample size determined from nominal maximum aggregate size, and MoDOT' s EPG chart		
2. Sample dried to constant mass at 230 ± 9°F (110 ± 5°C), weighed to nearest 0.1% and recorded		
- AASHTO T11 may be performed at this point, washing material finer than No. 200 sieve, dried to a constant mass at 230 ± 9°F (110 ± 5°C), weight recorded, and weight loss calculated to nearest whole number		
3. Stacked appropriate sieves in descending order		
4. Poured sample in the top sieve without losing material		
5. Agitated Manually or Mechanically		
- Manual Sieving continued until not more than 0.5% by mass of the total sample passes a given sieve during 1 minute of continuous hand sieving		
- Mechanical Sieving Verified annually		
- Timer verified/calibrated for sieving thoroughness. (Established by trial or checked by measurement on the actual test sample to meet the 0.5% criteria as in hand sieving above. (Records kept in the lab)		
- Set at verified/calibrated time approximately 7-10 min.		
- Or if timer not verified/calibrated, hand sieved afterwards for sieving accuracy		
6. Precautions taken to not overload sieves		
7. Weighed material in each sieve either by Non-cumulative or Cumulative method		
8. Total mass of material after sieving agrees with mass before sieving to within 1 gram per sieve used (If not, do not use for acceptance testing)		
9. Percentages calculated to nearest 0.1% and reported to nearest whole number		
10. Percentage calculations based on <u>original</u> dry sample mass, <u>including</u> the passing No. 200 fraction if T 11 was used		

PASS PASS

FAIL FAIL

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