

CMEC Sample Instructions

In order to eliminate specific procedural steps that may create variability in some samples, CMEC has developed instructions that may not follow guidelines established within individual ASTM and/or AASHTO test procedures.

Additionally, the methods for rounding and reporting are described in each section.

Please read and review the specific instructions for preparing your samples and properly reporting the results.

If you have any questions about a sample, contact CMEC for instructions at (407) 628-3682.

All results need to be entered by December 17, 2021.

REPORTING RESULTS

Go to - The CMEC website to report your results.

www.cmec.org

Select - Samples dropdown.

Select - Enter / View CMEC Proficiency Sample Results

Enter - Your Company ID.

- Your company ID number can be found on your Inspection Report.
- If you do not know your Company ID or if you have not yet been assigned a Company ID, please contact CMEC to retrieve it for you. 407-628-3682.

Enter - The current year if you are entering data or

Enter - The year for which you wish to view results.

Select - Enter Data or View Data button.

There are samples that are for multiple test procedures. ONLY Perform Test Procedures for which you have been accredited

CONCRETE

ASTM C39 – Compressive Strength of Concrete Cylinders

- Specimens have been wet cured in their molds for 14 days prior to shipping.
- Strip and cure specimens in accordance to ASTM C31 immediately upon receipt.
- Expect concrete strength to be in excess of 7000 psi.
- Report the result of the test in accordance to ASTM C39.
- Test Specimens shall be tested on **11/2/2021**.

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CONCRETE

ASTM C192 – Laboratory Cast Specimens / Plastic Concrete

The concrete mix design is calculated to yield approximately 1.5 cubic feet.

- **Coarse aggregate:**
 - Oven Dry coarse aggregate and allow it to cool to room temperature.
 - Weigh out 95.0 lbs. (Shipped 100 lbs.)
 - Completely submerge the coarse aggregate in water for 24 hours prior to batching.
 - (Assume Absorption = 0%)
 - Batch water must be adjusted for free moisture condition of coarse aggregate.
- **Fine Aggregate:**
 - Oven Dry sand and allow it to cool to room temperature.
 - Weigh out 73.0 lbs. (Shipped 80 lbs.)
 - Dampen the fine aggregate and allow curing for 24 hours prior to batching.
 - (Assume Absorption = 0%)
 - Batch water must be adjusted for free moisture condition of fine aggregate.
- **Cement:**
 - Sieve cement over #20 sieve to remove any lumps.
 - Weigh out 34.0 lbs. (Shipped 35 lbs.)
- **Water:**
 - **Use a 0.54 water cement ratio.**
- **Procedure:**
 - Butter mixer with water ONLY! Allow mixer to drain thoroughly.
 - Do not use any admixtures.
 - Follow the batching and mixing procedure in C192.
- **Test Procedures:**
 - Measure and report the air temperature and the concrete temperature to the nearest 1 degree F.
 - Measure and report slump to the nearest 0.25"
 - Measure and report air content to the nearest 0.1% or 0.25% depending on the selected test method.
 - Measure and report the unit weight (density) to the nearest 0.1 lbs./ft³.
- **Specimens:**
 - Cast three (3) 4"x 8" cylinders.
 - Test all three (3) cylinders at 28 days.
 - Cure specimens in moisture room or lime saturated soak tank until specified test date.
 - Report individual specimen strength to the nearest 10 psi.

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Coarse Aggregate Sample

This is a multi test sample. Please follow the instructions provided and perform the test procedures in the following order.

1. ASTM C136 / AASHTO T27 – Gradation (Coarse Aggregate)

- Weigh the entire sample.
- Run the entire sample. Do not split the sample!
- Use the following sieves: 1.0", 3/4", 1/2", 3/8", #4, #8, PAN

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.

- **Report the percent passing to the nearest whole number.**
 - *(Ex. 1%, no decimal points)*

2. Recombine Sample and perform ASTM C127/AASHTO T85

ASTM C127 / AASHTO T85 – Specific Gravity / Absorption (Coarse Aggregate)

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.

- Report specific gravity to the nearest 0.01.
- Report the absorption to the nearest 0.1%

3. Recombine Sample and perform ASTM C131/AASHTO T96

ASTM C131 / AASHTO T96 – LA Abrasion (Small Sized Coarse Aggregate)

- **Run as Method B with 11 Spheres**

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.

- Report the percent passing the #12 sieve to the nearest whole number.
 - (Ex. 1%, no decimal points)

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Aggregate

This is a multi test procedure sample. Please prepare and reduce the test samples to appropriate testing sizes per ASTM C702 / AASHTO R76.

Fine Aggregate

ASTM C117 / AASHTO T11 - Percent Passing #200 Sieve (Fine Aggregate)

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- **Report percent passing from C117/T11 to the nearest 0.1%**
 - *(Ex. 5.1%, one decimal point)*

ASTM C136 / AASHTO T27 - Gradation (Fine Aggregate)

- Perform C136/T27 on remaining portion from C117/T11 sample.
- Use the following sieves: #4, #8, #16, #30, #50, #100, #200, PAN
- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- **Report the percent passing to the nearest whole number.**
 - *(Ex. 1%, no decimal points)*
- **Report total % passing the #200 Sieve to the nearest 0.1%.**
 - *(Ex. 5.1%, one decimal point)*

ASTM C128 / AASHTO T84 - Specific Gravity / Absorption (Fine Aggregate)

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report specific gravity to the nearest 0.01.
- Report the absorption to the nearest 0.1%

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Hot Mix Asphalt

ASTM D6925 / AASHTO T312 – Gyratory Compaction

Includes:

ASTM D6307 / AASHTO T308 – AC Content by Loss on Ignition
ASTM D2041 / AASHTO T209 – Max Specific Gravity
ASTM D2726 / AASHTO T166 – Bulk Specific Gravity
ASTM D5444 / AASHTO T30 – Gradation

- Sample consists of all three (3) boxes.
- Heat boxes for 1.5 hours at 300 degrees F.
- Combine all three (3) boxes, roll and reduce to appropriate sample size.

- Perform two (2) gyratory samples.
 - Cover and condition for 1 hour at 300 degrees F.
 - Use a 4750-gram sample.
 - Perform at 75 gyrations at N design.
 - Report the average Bulk density (Gmb) to the nearest 0.001

- Perform Ignition (NCAT) extraction / gradation
 - Use a 1500-gram sample.

- Report AC content to the nearest 0.01%
- Use the following sieves: 3/4", 1/2", 3/8", #4, #8, #16, #30, #50, #100, #200, and PAN
- Report the percent passing to the nearest whole number. Except for the #200 sieve, report to the nearest 0.1%.
 - (Ex. Whole number - 1%, no decimal points. For the #200 sieve - 0.1%)

- Perform two (2) Rice (Gmm) samples.
 - Use an 1100-gram sample.
 - Report the average Max density (Gmm) to the nearest 0.001

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Hot Mix Asphalt

ASTM D6926 / AASHTO T245 – Marshall Compaction

Includes:

- ASTM D6307 / AASHTO T308 – AC Content by Loss on Ignition
- ASTM D2041 / AASHTO T209 – Max Specific Gravity
- ASTM D2726 / AASHTO T166 – Bulk Specific Gravity
- ASTM D5444 / AASHTO T30 – Gradation

- Sample consists of all three (3) boxes.
- Heat boxes for 1.5 hours at 300 degrees F.
- Combine all three (3) boxes, roll and reduce to appropriate sample size.

- Sample Preparation
 - Cover and condition for 1 hour at 300 degrees F.
 - Run three (3) compacted samples.
 - Use 50 blows per side.
 - Use 1150-gram per sample.
 - Report the average Bulk density (Gmb) to the nearest 0.001

- Report the average Load to the nearest 10 lb.
- Report the average Flow to the nearest 0.01”
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- Perform Ignition (NCAT) extraction / gradation
 - Use a 1500-gram sample.

- Report AC content to the nearest 0.01%

- Use the following sieves: 3/4”, 1/2”, 3/8”, #4, #8, #16, #30, #50, #100, #200, and PAN
- Report the percent passing to the nearest whole number. Except for the #200 sieve, report to the nearest 0.1%
 - (Ex. Whole number - 1%, no decimal points. For the #200 sieve - 0.1%)

- Perform two (2) Rice (Gmm) samples.
 - Use an 1100-gram sample.
 - Report the average Max density (Gmm) to the nearest 0.001

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Soil

This is a multi test procedure sample. Please prepare and reduce the test samples to appropriate testing sizes ASTM D421/AASHTO R58.

ASTM D698 / AASHTO T99 – Compaction of Soils Using Standard Effort

- Selection of Method
 - ASTM – Perform Method A - (4" Mold)
 - AASHTO – Perform Method A - (4" Mold)
- Use a 10 lb. sample
- Reuse remaining material after removal of moisture content between compaction points. Do not prepare individual points.
- There are no additional specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report Maximum Density to the nearest 1 lbs./ft³.
- Report Optimum Moisture to the nearest 0.5%

ASTM D1557 / AASHTO T180 – Compaction of Soils Using Modified Effort

- Selection of Method
 - ASTM – Perform Method C - (6" Mold)
 - AASHTO – Perform Method B - (6" Mold)
- Use a 25.0 lb. sample
- Reuse remaining material after removal of moisture content between compaction points. Do not prepare individual points.
- There are no additional specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report Maximum Density to the nearest 1 lbs./ft³.
- Report Optimum Moisture to the nearest 0.5%

ASTM D1140 – Percent passing #200 Sieve

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provide in the test procedure.
- Report percent Loss to nearest 0.1%

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Soil

This is a multi test procedure sample. Please prepare and reduce the test samples to appropriate testing sizes per D421/ AASHTO R58.

ASTM D422 / AASHTO T88 – Particle Size Analysis

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report percent passing #10 (2.000mm) sieve to nearest 0.1%
- Report percent passing #40 (0.425mm) sieve to nearest 0.1%
- Report percent passing #200 (0.075mm) sieve to nearest 0.1%
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- Report percent passing 0.02mm diameter to nearest 0.1%
- Report percent passing 0.002mm diameter to nearest 0.1%
- Report percent passing 0.001mm diameter to nearest 0.1%

Florida Corrosion Series

FM 5-550, FM 5-551, FM 5-552, FM 5-553

- Air Dry the material at a temperature not exceeding 140F.
- Sample Sizes
 - Use a 150-gram sample for pH.
 - Use a 1000-gram sample for Resistivity.
 - Use a 100-gram sample for Chloride Content.
 - Use a 100-gram sample for Sulfate Content.
- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report results in accordance with the specification.

ASTM D854 / AASHTO T100 – Specific Gravity of Soils

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report results in accordance with the specification.

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FM 5-515 – Limerock Bearing Ratio (LBR)

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- ***The sample is Subgrade Material***
- Report Maximum Density to the nearest 1 lbs./ft³.
- Report Optimum Moisture to the nearest 0.5%
- Report LBR Value to the nearest 1%

ASTM D4318 / AASHTO T89, T90 – Liquid, Plastic Limit, Plasticity Index

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report Liquid Limit to nearest 1%
- Report Plastic Limit to nearest 1%
- Report Plasticity Index to nearest 1%

FM 5-514 – Carbonate Content

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- Report percent Loss to nearest 0.1%

ASTM D1883/AASHTO T193- California Bearing Ratio

- There are no specific instructions required for performing this sample. Please do not deviate from the instructions provided in the test procedure.
- **The sample is Subgrade Material.**
- Report Maximum Density to the nearest 1 lbs./ft³.
- Report Optimum Moisture to the nearest 0.5%
- Report CBR Value to the nearest 1%

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