



**How to use these tables:**

The following tables show the standard test methods included in each AASHTO resource and CCRL proficiency sample. Each line item in the table includes a number that corresponds to an accreditation policy related to participation in the proficiency sample program for each standard test method. Each reference sample-specific policy is shown under each table.

A notation of a dash (-) means that the normal policies apply, and there are no additional sample-specific policies for that test method. A notation of n/a means that the rating is not used for accreditation purposes. The general policies related to proficiency testing are in the AASHTO Procedures Manual for the Accreditation of Construction Materials Testing Laboratories.

**The following policies apply to all standard test methods and all samples:**

- Laboratory accreditation is suspended when any combination of ratings of 0, 1, or -1 and no results occur on samples for a test property (line item on a proficiency sample report) on consecutive sample rounds.
- Laboratory accreditation is not suspended for low ratings or no data on single operator precision results.
- If the standard test method is included in more than one proficiency sample, laboratory participation will be evaluated separately for each proficiency sample (ex. low ratings/no results on AASHTO T30 on Hot-Mix Solvent samples and satisfactory ratings on AASHTO T30 on Hot-Mix Ignition samples will still result in a T30 suspension due to the low ratings on the Hot-Mix Solvent samples.) If there is an exception to this rule, it will be noted in the sample-specific policies (see VGA rule 1 for example).

**The following pages describe the proficiency sample-specific policies.**

**Please note that this revision replaces Fine Aggregate (AGF) and Coarse Aggregate (AGC) samples with Aggregate Gradation and Gravity (AGG) and Aggregate Degradation (AGD) samples. This change will take place in 2022. For information about the policies on the former AGF and AGC samples, please contact Joe Williams at [jwilliams@ashtoresource.org](mailto:jwilliams@ashtoresource.org).**



### Viscosity Graded Asphalt Cement (VGA)

| AASHTO | ASTM  | Test Name              | Policy  |
|--------|-------|------------------------|---------|
| T48    | D92   | Cleveland Flash        | 1       |
| T49    | D5    | Penetration            | 2, 3, 5 |
| T201   | D2170 | Kinematic Viscosity    | 2, 3, 4 |
| T202   | D2172 | Absolute Viscosity     | 2, 3    |
| T228   | D70   | Specific Gravity       | 1       |
| T240   | D2872 | Rolling Thin-Film Oven | 1       |

- 1 Participation may be in either PGB or VGA for these tests. If no data is submitted, there will not be a suspension unless it is the only sample type that allows the laboratory to perform the test included in their accreditation.
- 2 For tests on material following RTFO, even though these tests may be an indicator of the effectiveness of the RTFO-conditioning, the accreditation for individual tests in which low ratings are received will be suspended rather than T240/D2872.
- 3 These tests are required to be performed on VGA samples unless the laboratory only performs the test on recovered asphalt residue and performs the test on the EML or HMS samples.
- 4 If “(cut-back asphalt only)” is listed on a laboratory’s accreditation for T201/D2170, participation in the proficiency sample program is not required for this test.
- 5 Penetration of samples at 4°C, 200g, 60s will not be evaluated for accreditation purposes.



### Performance Graded Asphalt Binder (PGB)

| AASHTO | ASTM  | Test Name                                 | Policy |
|--------|-------|---|--------|
| R28    | D6521 | Pressurized Aging Vessel                  | 1      |
| T48    | D92   | Cleveland Flash                           | 2      |
| T228   | D70   | Specific Gravity                          | 2      |
| T240   | D2872 | Rolling Thin-Film Oven                    | 2      |
| T301   | D6084 | Elastic Recovery                          | 3      |
| T313   | D6648 | Bending Beam Rheometer (BBR)              | -      |
| T315   | D7175 | Dynamic Shear Rheometer (DSR)             | 4      |
| T316   | D4402 | Rotational Viscosity (Brookfield)         | -      |
| T350   | D7405 | Multiple Stress Creep and Recovery (MSCR) | 5      |
|        | D8078 | Ash Content                               | -      |

- 1** This is a standard practice only, but it is required to be performed when performing T313/D6648, T314/D6723, T315/D7175, or T315/D7175 (PAV-aged). Accreditation for this standard practice will only be suspended if no data is submitted for T313/D6648, T314/D6723, T315/D7175, or T315/D7175 (PAV-aged).
- 2** Participation may be in either PGB or VGA for these tests. If no data is submitted, there will not be a suspension unless it is the only sample type that allows the laboratory to perform the test included in their accreditation.
- 3** This will only be evaluated in the fall rounds. The fall rounds always include a modified binder.
- 4a** T315/D7175 will be suspended if low ratings/no data occur when testing the original, PAV-aged, or RTFO-conditioned samples.
- 4b** If a laboratory chooses to limit their accreditation to unaged binder, RTFO-aged binder, or PAV-aged binder, the accreditation listings and suspensions will be split using the following terms: T315/D7175 (Original), T315/D7175 (RTFO-aged), and T315/D7175 (PAV-aged). Performance will be evaluated separately for each component.
- 4c** Laboratory accreditation is not suspended for low ratings or no data on Phase angle ( $\delta$ ) results.
- 4d** This test is required to be performed on PGB samples unless the laboratory only performs the test on recovered asphalt residue and performs the test on HMS samples.
- 5** Laboratory accreditation is not suspended for low ratings or no data on Percent Difference in Recovery between 0.1 and 3.2 kPa and Percent Difference of Non-recoverable Creep Compliance, or Jnr-diff results. “Rdiff” and “Jnr-diff” are calculated from test data that may not lie within a reasonable deviation about the consensus values for the Average Percent Recovery and Non-Recoverable Creep Compliance at 0.1 and 3.2 kPa, respectively.



### Emulsified Asphalt (EML)

| AASHTO | ASTM      | Test name                | Policy |
|--------|-----------|--------------------------|--------|
| T59    | D7496-D88 | Saybolt Viscosity (25°C) | 1      |
| T59    | D7496-D88 | Saybolt Viscosity (50°C) | 1      |
| T382   | D7226     | Paddle Viscometer        | -      |
| T59    | D6997     | Residue by Distillation  | 2      |
| T59    | D6934     | Residue by Evaporation   | -      |

### Tests on Recovered Residue

|     |       |             |   |
|-----|-------|-------------|---|
| T44 | D2042 | Solubility  | 3 |
| T49 | D5    | Penetration | 4 |
|     | D8078 | Ash Content | 5 |

- 1** Saybolt Viscosity (T59/D7496) only needs to be performed if the sample round requires testing at the specified temperature that is included in the laboratory accreditation. For example, if the lab is only accredited for testing at 25°C, the laboratory is only required to perform the test on the emulsion proficiency sample if the sample is required to be tested at 25°C.
- 2** Laboratory accreditation is not suspended for low ratings or no data on Percent Oil results.
- 3** Laboratory accreditation is not suspended for low ratings or no data on T44/D2042 results.
- 4a** Even though this test may be an indicator of the effectiveness of the distillation or evaporation technique, the individual tests in which low ratings are received will be suspended rather than the distillation or evaporation practices.
- 4b** If the laboratory is not accredited for the distillation or evaporation, the results of the test on residue will not be evaluated that follow that process.
- 4c** If the laboratory performs this test on the VGA or HMS sample, results are not required to be submitted on this sample.
- 5a** Accreditation policies will only be enforced on the PGB samples for this test.
- 5b** Even though data for D8078 may be submitted in the EML sample, a laboratory is required to be enrolled and submit data in PGB to maintain accreditation for D8078.



### Slurry and Micro Systems (SMS)

| ISSA   | ASTM                  | Test Name   | Policy |
|--------|-----------------------|---|--------|
| TB-100 | D3910<br>and<br>D6372 | Wet Track Abrasion  | 1      |
|        | D3910                 | Set Time  | 1      |
| TB-109 |                       | Measurement of Excess Asphalt by Loaded Wheel Tester and Sand Adhesion  | 1      |
| TB-113 |                       | Trial Mix Procedure of Slurry Design                                    | 1      |
| TB-139 | D3910<br>and<br>D6372 | Set and Cure Development by Cohesion Tester                             | 1      |
| TB-147 | D6372                 | Measurement of Vertical and Lateral Displacement by Loaded Wheel Tester | 1      |

1 Proficiency sample rounds 9 and 10 are the first rounds that will be used for AASHTO Accreditation purposes.



### Hot Mix Asphalt Solvent Extraction (HMS)

| AASHTO | ASTM  | Test Name                        | Policy |
|--------|-------|----------------------------------|--------|
| T164   | D2172 | AC Content by Extraction         | 1      |
|        | D8159 | Automated Extraction             | 1      |
| T30    | D5444 | Gradation of Extracted Aggregate | 2      |
| R59    | D1856 | Abson Recovery                   | -      |
|        | D5404 | Rotovapor Recovery               | -      |

#### Tests on Recovered Residue

| AASHTO | ASTM  | Test Name                     | Policy |
|--------|-------|-------------------------------|--------|
| T49    | D5    | Penetration                   | 3      |
| T201   | D2170 | Kinematic Viscosity           | 3      |
| T202   | D2171 | Absolute Viscosity            | 3      |
| T315   | D2175 | Dynamic Shear Rheometer (DSR) | 3      |

**1** The option to determine the asphalt content per D8159 was added to HMS samples 91 and 92. Low ratings or no results on asphalt binder content will result in a suspension of accreditation for T164 and D2172. If a laboratory wishes to perform both D8159 and T164/D2172, the laboratory should perform T164/D2172 on the normal round of testing and D8159 on an extra sample.

**2a** Low ratings/no results must occur on the same sieve size in order to be considered consecutive.

**2b** Low ratings/no results must occur on samples extracted by the same test (T308/D6307 or T164/D2172) in order to be considered consecutive.

**3** Data for tests on residue are only required to be submitted if a laboratory is accredited for a method of recovery (R59/D1856 or D5404) and one of the tests on residue.

### Hot Mix Asphalt Ignition Oven (HMI)

| AASHTO | ASTM  | Test Name                        | Policy |
|--------|-------|----------------------------------|--------|
| T308   | D6307 | AC Content by Ignition Oven      | -      |
| T30    | D5444 | Gradation of Extracted Aggregate | 1      |

**1a** Low ratings/no results must occur on the same sieve size in order to be considered consecutive.

**1b** Low ratings/no results must occur on samples extracted by the same test (T308/D6307 or T164/D2172) in order to be considered consecutive.

**1c** The mass removed by washing over the 75-µm (No. 200) sieve will not be evaluated by the accreditation program.



### Hot Mix Asphalt Marshall Design (MAR)

| AASHTO | ASTM  | Test Name                        | Policy |
|--------|-------|----------------------------------|--------|
| R68    | D6926 | Marshall Compaction              | -      |
| T245   | D6927 | Stability and Flow               | 4      |
| T166   | D2726 | Bulk Specific Gravity            | 1, 2   |
| T331   | D6752 | Bulk Specific Gravity – Core Lok | 1, 2   |
| T209   | D2041 | Maximum Specific Gravity         | -      |
| T269   | D3203 | Percent Air Voids                | 1, 5   |
|        | D3549 | Height of Compacted Specimens    | 3      |

- 1** No action to be taken if laboratory does not submit data for this test and the laboratory is accredited for the (cores) variation of the bulk specific gravity tests.
- 2a** If a laboratory is accredited for T166/D2726 and T331/D6752, the laboratory must perform both tests in order to maintain accreditation for both tests.
- 2b** If low scores result in a suspension of T166/D2726, accreditation for T275/D1188 will be suspended as well.
  
- 3** Low scores on height measurement will result in a suspension of R68/D6926 and D3549 since they can be an indication of an error in the compaction process and/or the measurement itself.
- 3b** A laboratory that prepares samples for T283/D4867 using T312/D6925 is not required to enroll in the HVM or MAR programs only for D3549.
  
- 4** Once negative action has occurred on one test value (stability or flow), satisfactory results are needed on all test values (stability and flow).
  
- 5** A laboratory that only compacts samples using T312/D6925 is not required to enroll in the HVM or MAR programs only for T269/D3203.



### Hot Mix Asphalt Gyratory Design (HMG)

| AASHTO                | ASTM  | Test Name                          | Policy  |
|-----------------------|-------|------------------------------------|---------|
| T312                  | D6925 | Gyratory Compactor                 | -       |
| T166                  | T2726 | Bulk Specific Gravity              | 1, 2, 3 |
| T331                  | D6752 | Bulk Specific Gravity – Core Lok   | 3       |
| T209                  | D2041 | Maximum Specific Gravity           | 2       |
| T100 (Mineral Filler) |       | Specific Gravity of Mineral Filler | 4       |

- 1** No action to be taken if laboratory does not submit data for this test and the laboratory is accredited for the (cores) variation of the bulk specific gravity tests.
- 2** The HMG sample does not include T269/D3203 directly; however, if accreditation for any of the prerequisite test methods for T269/D3203 is revoked or withdrawn, T269/D3203 will be revoked or withdrawn.
- 3a** If a laboratory is accredited for T166/D2726 and T331/D6752, the laboratory must perform both tests in order to maintain accreditation for both tests.
- 3b** If low scores result in a suspension of T166/D2726, accreditation for T275/D1188 will be suspended as well.
- 4** This method will be listed in the aggregate scope if a laboratory is accredited for R35. If a laboratory is also accredited for T100 in the soils scope, the laboratory must perform T100 testing on the Soil Classification and Compaction samples also.





**Hot Mix Asphalt Hveem Design (HVM)<sup>1</sup>**

| AASHTO | ASTM  | Test Name                         | Policy |
|--------|-------|-----------------------------------|--------|
| T247   | D1561 | CA Kneading Compactor             | 1      |
| T246   | D1560 | Hveem (Corrected and Uncorrected) | 2      |
| T166   | D2726 | Bulk Specific Gravity             | 3, 4   |
| T209   | D2041 | Maximum Specific Gravity          | -      |
| T269   | D3203 | Percent Air Voids                 | 3, 6   |
|        | D3549 | Height of Compacted Specimens     | 5      |

**State Compaction and Stabilometer Methods**

|                     |                       |      |
|---------------------|-----------------------|------|
| CPL-5115 & CPL-5106 | CO Gyrotory and Hveem | 1, 2 |
| TX-206-F & TX-208-F | TX Gyrotory and Hveem | 1, 2 |

- 1a** Laboratories that are accredited for TX-206-F, CPL 5115, or T247/D1561 must be participating in this sample starting in 2014 whether they are performing the Hveem test or not. Height of compaction will be evaluated.
- 1b** For the HVM samples, the specimens can be compacted by either the California kneading compactor, Texas gyrotory compactor, or the Colorado 4-inch Superpave gyrotory compactor. Ratings will be evaluated for only one of the compaction methods even if the laboratory is accredited for more than one.
- 2** Low ratings/no results on corrected or uncorrected will result in a suspension.
- 3** No action to be taken if laboratory does not submit data for this test and the laboratory is accredited for the (cores) variation of the bulk specific gravity tests.
- 4** If low scores result in a suspension of T166/D2726, accreditation for T275/D1188 and T331/D6752 will also be suspended.
- 5a** Low scores on height measurement will result in a suspension of T247/D1561 and D3549 since they can be an indication of an error in the compaction process and/or the measurement itself.
- 5b** A laboratory that prepares samples for T283/D4867 using T312/D6925 is not required to enroll in the HVM or MAR programs only for D3549.
- 6** A laboratory that only compacts samples using T312/D6925 is not required to enroll in the HVM or MAR programs only for T269/D3203.



### California Bearing Ratio (CBR)

| AASHTO | ASTM  | Test Name                | Policy |
|--------|-------|--------------------------|--------|
| T193   | D1883 | California Bearing Ratio | 1      |

1 Ratings on moisture content and swell will not be evaluated for accreditation purposes.

### R-Value (RVL)

| AASHTO | ASTM  | Test Name | Policy |
|--------|-------|-----------|--------|
| T190   | D2844 | R-Value   | 1      |

1 Ratings on moisture content will not be evaluated for accreditation purposes.



### Soil Classification and Compaction (SOL)

| AASHTO | ASTM  | Test Name   | Policy |
|--------|-------|---|--------|
| T88    | D422  | Particle Size Analysis/Hydrometer                     | 1, 2   |
| T89    | D4318 | Liquid Limit  | 3      |
| T90    | D4318 | Plastic Limit   | 3      |
| T100   | D854  | Specific Gravity                                      | 4      |
| T99    | D698  | Standard Proctor                                      | 5      |
| T180   | D1557 | Modified Proctor                                      | 5      |
|        | D4943 | Shrinkage Factor                                      | -      |
|        | D7928 | Hydrometer  | 1      |
| T288   | G187  | Determining Minimum Soil Resistivity                  | -      |
| T289   |       | Determining pH of Soil for Use in Corrosion Testing   | -      |
|        | D4972 | Determining pH of Soils                               | -      |
| T290   |       | Determining Water-Soluble Sulfate Ion Content in Soil | -      |
| T291   |       | Determining Water-Soluble Sulfate Ion Content in Soil | -      |

**1a** Low ratings/no results must occur on the same test value in order to be considered consecutive. Once negative action has occurred on one test value, satisfactory results are needed on all test values.

**1b** A laboratory that is accredited for both methods of hydrometer testing shall submit test data for both T88/D422 and D7928. A suspension for either T88/D422 or D7928 does not affect the other hydrometer method.

**2** Ratings or no data on Total Material Smaller Than 0.001 mm will not be evaluated for accreditation purposes.

**3** Low ratings/no results on the liquid limit procedure or plastic limit procedure of D4318 will result in a suspension for all D4318. Once negative action has occurred on one test value, satisfactory results are needed on both procedures to be reinstated for D4318.

**4** Participation is required for soils testing only. If a laboratory is accredited for T100 (Mineral Filler) in the aggregate scope, the laboratory must perform T100 testing on the Asphalt Mixture Gyratory Design (HMG) samples also.

**5a** Laboratories will have the option of testing standard (T99/D698) or modified (T180/D1557) Proctors. Accreditation for both T99/D698 and T180/D1557 will be evaluated based on the proficiency sample results of either the standard or modified compaction test. A laboratory accredited for only T99/D698 or T180/D1557 must submit results for that effort.

**5b** Satisfactory ratings are required for the entire test method for reinstatement to occur.



### Aggregate Gradation and Gravity (AGG)

| AASHTO | ASTM  | Test Name                 | Policy |
|--------|-------|---------------------------|--------|
| T11    | C117  | Minus No. 200 Wash        | -      |
| T27    | C136  | Sieve Analysis            | 1      |
| T84    | C128  | Specific Gravity (Fine)   | -      |
| T85    | C127  | Specific Gravity (Coarse) | -      |
| T176   | D2419 | Sand Equivalent           | -      |
| T304   | C1252 | Uncompacted Void Content  | 2      |

**1a** Low ratings/no results must occur on the same sieve size in order to be considered consecutive. Once negative action has occurred on one test value (sieve size), satisfactory results are needed on all test values (sieve sizes).

**1b** A suspension for these tests will occur if consecutive low ratings/no results are received on coarse or fine aggregate. The ratings are to be evaluated separately and will cause the entire test to be suspended rather than just the portion that was included in the offending sample results. However, accreditation may reflect “Coarse Aggregate” or “Fine Aggregate” if the laboratory is not a participant due to the type of work they are performing normally.

**2** Only the average result will be used for accreditation purposes.

### Aggregate Degradation (AGD)

| AASHTO | ASTM      | Test Name                      | Policy |
|--------|-----------|--------------------------------|--------|
| T96    | C131/C535 | LA Abrasion                    | 1      |
| T103   | -         | Soundness by Freezing/Thawing  | 2      |
| T104   | C88       | Soundness of Aggregate         | 3      |
| T327   | D6928     | Micro Deval (Fine Aggregate)   | -      |
| -      | D7428     | Micro Deval (Coarse Aggregate) | -      |

**1** Low ratings/no results for LA Abrasion will lead to suspensions for both T96/C131 and C535.

**2** Only testing of coarse aggregate will be performed using T103.

**3** A laboratory may submit results for testing using either Sodium or Magnesium Sulfate.



### Alkali Silica Reactivity

| AASHTO | ASTM  | Test Name                | Policy |
|--------|-------|--------------------------|--------|
| T303   | C1260 | Alkali Silica Reactivity | 1      |

**1** Only the 14-day reading will be evaluated for accreditation purposes.

### Concrete

| AASHTO | ASTM  | Test Name                         | Policy |
|--------|-------|-----------------------------------|--------|
| T22    | C39   | Compressive Strength of Cylinders | 1      |
| T97    | C78   | Flexural Strength of Beams        | 3      |
| T119   | C143  | Slump                             | -      |
| T121   | C138  | Unit Weight                       | -      |
| T152   | C231  | Air Content - Pressure Method     | -      |
| T196   | C173  | Air Content – Volumetric Method   | -      |
| T309   | C1064 | Temperature                       | 2      |

**1a** Participation is required for all laboratories accredited for T22/C39. If someone else molds their cylinders, the laboratory can have them mold their proficiency samples too.

**1b** Ratings on density will not be evaluated for accreditation purposes.

**2** Ratings or no data on T309/C1064 will not be evaluated for accreditation purposes.

**3** Beginning with concrete samples 199/200, laboratories that are accredited for T97 or C78 will be required to receive satisfactory ratings for testing concrete beams.



### Masonry Cement

| AASHTO | ASTM  | Test Name                         | Test Property                   | Policy  |
|--------|-------|-----------------------------------|---------------------------------|---------|
| T129   | C187  | Normal Consistency                | Normal Consistency: Water       | 1, 2    |
| T154   | C266  | Time of Setting - Gillmore Needle | Gillmore Initial Time of Set    | 1, 2    |
|        |       |                                   | Gillmore Final Time of Set      | 1, 2    |
| T107   | C151  | Autoclave Expansion               | Percent Expansion               | 1, 2    |
| T137   | C185  | Air Content of Mortar             | Percent Air                     | 1, 2    |
|        |       |                                   | Mortar Mix Water                | 1, 2    |
|        |       |                                   | Mortar Flow (Suppressed)        | 1, 2    |
| T106   | C109  | Compressive Strength              | Average 7-Day                   | 1, 2, 3 |
|        |       |                                   | Average 28-Day                  | 1, 2, 3 |
| T192   | C430  | Fineness - No. 325 Sieve          | No. 325 Sieve, Percent Retained | 1, 2    |
| T133   | C188  | Density                           | Density                         | 1, 2    |
|        | C1506 | Water Retention                   | Mixing Water                    | 4       |
|        |       |                                   | Initial Flow (Suppressed)       | 4       |
|        |       |                                   | Final Flow                      | 4       |
|        |       |                                   | Water Retention                 | 4       |

- 1 If a laboratory chooses to enroll in multiple sample programs (ex. Portland Cement, Blended Cement, Masonry Cement), the laboratory is required to receive satisfactory results for all accredited tests in all sample programs in which the laboratory is enrolled. Please refer to Annex 1 and 2 for a comparison of the tests in each program.
- 2 If a laboratory is accredited for tests that are all included in one sample program (ex. Portland Cement or Blended Cement), the laboratory only needs to maintain enrollment in that sample program.
- 3 For compressive strength (T106/C109), specification C91 dictates that compressive strength must be tested for the 7- and 28-day periods. Satisfactory ratings are required for the 7- and 28-day compressive strength tests in order to maintain accreditation for T106/C109.
- 4 This is only available on the CCRL Masonry Cement samples for accreditation under the Cement scope. If a laboratory is accredited for a cement test that is only offered in one sample program, the laboratory is required to maintain enrollment in that program and is required to perform all tests in that sample program that are also included in the laboratory's accreditation.



## Portland Cement

### Physical Testing

| AASHTO | ASTM  | Test Name                         | Test Property                | Policy  |
|--------|-------|-----------------------------------|------------------------------|---------|
| T129   | C187  | Normal Consistency                | Normal Consistency: Water    | 1, 2    |
| T131   | C191  | Time of Setting - Vicat Needle    | Vicat Initial Time of Set    | 1, 2    |
|        |       |                                   | Vicat Final Time of Set      | 1, 2    |
| T154   | C266  | Time of Setting - Gillmore Needle | Gillmore Initial Time of Set | 1, 2    |
|        |       |                                   | Gillmore Final Time of Set   | 1, 2    |
| T186   | C451  | Early Stiffening                  | False Set                    | 1, 2    |
| T133   | C188  | Density                           | Density                      | -       |
| T107   | C151  | Autoclave Expansion               | Percent Expansion            | 1,2     |
| T137   | C185  | Air Content of Mortar             | Percent Air                  | 1, 2    |
|        |       |                                   | Mortar Mix Water             | 1, 2    |
|        |       |                                   | Mortar Flow (Suppressed)     | 1, 2    |
| T106   | C109  | Compressive Strength              | Average 3-Day                | 1, 2, 3 |
|        |       |                                   | Average 7-Day                | 1, 2, 3 |
|        |       |                                   | Average 28-Day               | 1, 2, 3 |
|        |       |                                   | Flow for Mortar (Suppressed) | 1, 2, 3 |
| T153   | C204  | Fineness – Blaine Apparatus       | Air Permeability             | 1, 2    |
| T192   | C430  | Fineness – No. 325 Sieve          | No. 325 Sieve                | 1, 2    |
|        | C1038 | Expansion of Cement Mortar Bars   | Average Expansion            | 1, 2, 4 |
|        | C1702 | Heat of Hydration (Calorimetry)   | 3-Day                        | 1, 2, 5 |
|        |       |                                   | 7-Day                        | 1, 2, 5 |



**Portland Cement** (continued)

**Chemical Testing**

| AASHTO  | ASTM | Test Name  | Policy     |
|---|------|--|------------|
| T105  | C114 | Silicon Dioxide (SiO <sub>2</sub> )                    | 1, 2       |
|   |      | Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )       | 1, 2       |
|   |      | Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )         | 1, 2       |
|   |      | Calcium Oxide (CaO)                                    | 1, 2       |
|   |      | Free Calcium Oxide [Free Lime] (C <sub>x</sub> )       | 1, 2, 4    |
|   |      | Magnesium Oxide (MgO)                                  | 1, 2       |
|   |      | Sulfur Trioxide (SO <sub>3</sub> )                     | 1, 2       |
|   |      | Loss on Ignition (LOI)                                 | 1, 2       |
|   |      | Sodium Oxide (Na <sub>2</sub> O)                       | 1, 2       |
|   |      | Potassium Oxide (K <sub>2</sub> O)                     | 1, 2       |
|   |      | Strontium Oxide (SrO)                                  | 6          |
|   |      | Titanium Dioxide (TiO <sub>2</sub> )                   | 1, 2       |
|   |      | Phosphorous Pentoxide (P <sub>2</sub> O <sub>5</sub> ) | 1, 2       |
|   |      | Zinc Oxide (ZnO)                                       | 1, 2       |
|   |      | Manganic Oxide (Mn <sub>2</sub> O <sub>3</sub> )       | 1, 2       |
|   |      | Chloride (Cl)  | 1, 2       |
|   |      | Insoluble Residue (IR)                                 | 1, 2       |
|   |      | Carbon Dioxide (CO <sub>2</sub> )                      | 1, 2, 4, 5 |
|   |      | Limestone Content                                      | 6          |
|   |      | Chromium Oxide (Cr <sub>2</sub> O <sub>3</sub> )       | 6          |
| Tricalcium Silicate (C <sub>3</sub> S)          | 6    |  |            |
| Dicalcium Silicate (C <sub>2</sub> S)           | 6    |  |            |
| Tricalcium Aluminate (C <sub>3</sub> A)         | 6    |  |            |
| Tetracalcium Aluminoferrite (C <sub>4</sub> AF) | 6    |  |            |

- 1 If a laboratory chooses to enroll in multiple sample programs (ex. Portland Cement, Blended Cement, Masonry Cement), the laboratory is required to receive satisfactory results for all accredited tests in all sample programs in which the laboratory is enrolled. Please refer to Annex 1 and 2 for a comparison of the tests in each program.
- 2 If a laboratory is accredited for tests that are all included in one sample program (ex. Portland Cement or Blended Cement), the laboratory only needs to maintain enrollment in that sample program.
- 3 Specification C150 dictates that compressive strength must be tested for the 3- and 7-day periods. Satisfactory results are required for the 3- and 7-day compressive strength tests in order to maintain accreditation for T106/C109.
- 4 This is only available on the CCRL Portland Cement samples.





### Portland Cement (continued)

- 5 Data submission for Carbon Dioxide is required even if limestone has not been added to the Portland cement samples.
- 6 These tests are not currently offered in the AASHTO Accreditation Program.

### Blended Cement

#### Physical Testing

| AASHTO | ASTM  | Test Name                       | Test Property                  | Policy  |
|--------|-------|---------------------------------|--------------------------------|---------|
| T129   | C187  | Normal Consistency              | Normal Consistency: Water      | 1, 2    |
| T131   | C191  | Time of Setting – Vicat Needle  | Vicat Initial Time of Set      | 1, 2    |
|        |       |                                 | Vicat Final Time of Set        | 1, 2    |
| T107   | C151  | Autoclave Expansion             | Percent Expansion              | 1, 2    |
| T137   | C185  | Air Content of Mortar           | Percent Air                    | 1, 2    |
|        |       |                                 | Mortar Mix Water               | 1, 2    |
|        |       |                                 | Mortar Flow (Suppressed)       | 1, 2    |
| T133   | C188  | Density                         | Density                        | 1, 2    |
| T106   | C109  | Compressive Strength            | Average 3-Day                  | 1, 2, 3 |
|        |       |                                 | Average 7-Day                  | 1, 2, 3 |
|        |       |                                 | Average 28-Day                 | 1, 2, 3 |
|        |       |                                 | Compressive Strength Mix Water | 1, 2, 3 |
|        |       |                                 | Flow for Mortar (Suppressed)   | 1, 2, 3 |
| T153   | C204  | Fineness – Blaine Apparatus     | Air Permeability               | 1, 2    |
| T192   | C430  | Fineness – No. 325 Sieve        | No. 325 Sieve                  | 1, 2    |
|        | C1702 | Heat of Hydration (Calorimetry) | 3-Day                          | 1, 2    |
|        |       |                                 | 7-Day                          | 1, 2    |



**Blended Cement** (continued)

**Chemical Testing**

| AASHTO   | ASTM | Test Name  | Policy |
|--|------|--|--------|
| T105   | C114 | Silicon Dioxide (SiO <sub>2</sub> )                    | 1, 2   |
|  |      | Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )       | 1, 2   |
|  |      | Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )         | 1, 2   |
|  |      | Calcium Oxide (CaO)                                    | 1, 2   |
|  |      | Magnesium Oxide (MgO)                                  | 1, 2   |
|  |      | Sulfur Trioxide (SO <sub>3</sub> )                     | 1, 2   |
|  |      | Loss on Ignition (LOI)                                 | 1, 2   |
|  |      | Sodium Oxide (Na <sub>2</sub> O)                       | 1, 2   |
|  |      | Potassium Oxide (K <sub>2</sub> O)                     | 1, 2   |
|  |      | Phosphorous Pentoxide (P <sub>2</sub> O <sub>5</sub> ) | 1, 2   |
|  |      | Zinc Oxide (ZnO)                                       | 1, 2   |
|  |      | Manganic Oxide (Mn <sub>2</sub> O <sub>3</sub> )       | 1, 2   |
|  |      | Chloride (Cl)  | 1, 2   |
|  |      | Insoluble Residue (IR)                                 | 1, 2   |
|  |      | Titanium Dioxide (TiO <sub>2</sub> )                   | 1, 2   |
| Chromium Oxide (Cr <sub>2</sub> O <sub>3</sub> ) | 5    |  |        |

**1** If a laboratory chooses to enroll in multiple sample programs (ex. Portland Cement, Blended Cement, Masonry Cement), the laboratory is required to receive satisfactory results for all accredited tests in all sample programs in which the laboratory is enrolled. Please refer to Annex 1 and 2 for a comparison of the tests in each program.

**2** If a laboratory is accredited for tests that are all included in one sample program (ex. Portland Cement or Blended Cement), the laboratory only needs to maintain enrollment in that sample program.

**3a** Specification C595 dictates that compressive strength must be tested for the 3-, 7-, and 28-day periods. Satisfactory results are required for the 3-, 7-, and 28-day compressive strength tests in order to maintain accreditation for T106/C109.

**3b** Mix Water is evaluated for accreditation purposes.

**4** All elements of C186 are evaluated for accreditation purposes.

**5** These tests are not currently offered in the AASHTO Accreditation Program.



**Pozzolan  
Physical Testing**

| AASHTO | ASTM | Test Name  | Test Property                              | Policy |
|--------|------|--|--|--------|
| T133   | C188 | Density  | Density                                    | 1      |
| T192   | C430 | Fineness – No. 325 Sieve   | Retained No. 325 Sieve                     | 1      |
| T160   | C157 | Increase of Dry Shrinkage  | Drying Shrinkage                           | 1      |
| T107   | C151 | Autoclave Expansion  | Soundness by Autoclave Expansion           | 1      |
| T129   | C187 | Normal Consistency   | Water, % by Weight                         | 1      |
| T137   | C185 | Air Content of Mortar  | Vinsol Resin (Suppressed)                  | 1, 3   |
| T106   | C109 | Compressive Strength   | 7-Day Strength Activity Index              | 1, 2   |
|        |      |  | 28-Day Strength Activity Index             | 1, 2   |
|        |      |  | Water Requirement: Percent of Control      | 1, 2   |
|        | C441 | Effectiveness of Mineral Admixtures in Controlling Alkali Silica-Reactions | Reduction of Mortar Expansion (Suppressed) | 1, 3   |

- 1** Pozzolan physical testing results will be evaluated independently of cement results even if the standard is also used in cement testing.
- 2** For compressive strength (T106/C109), specification C311 allows for 7 or 28-day specimens to be tested depending on amount of material and the requirements of the producer or user. In this case, the laboratory is being asked to supply results for 28-day compressive strength testing by CCRL. Satisfactory ratings are required for the 7 and 28-day compressive strength tests in order to maintain accreditation for T106/C109.
- 3** Even though ratings for T137/C185 and C441 are suppressed, participation is required if a laboratory maintains accreditation for these standards. The accreditation will be suspended if results are not submitted.



**Pozzolan  
Chemical Testing**

| AASHTO                   | ASTM | Test Name  | Policy |
|--------------------------|------|--|--------|
| T105                     | C114 | Moisture Content   | 2      |
|                          |      | Silicon Dioxide (SiO <sub>2</sub> )                              | 1      |
|                          |      | Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> ) w/minor oxides  | 1      |
|                          |      | Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> ) wo/minor oxides | 1      |
|                          |      | Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )                   | 1      |
|                          |      | Calcium Oxide (CaO) w/minor oxides                               | 1      |
|                          |      | Calcium Oxide (CaO) wo/minor oxides                              | 1      |
|                          |      | Magnesium Oxide (MgO)  | 1      |
|                          |      | Sulfur Trioxide (SO <sub>3</sub> )                               | 1      |
|                          |      | Loss on Ignition (LOI)   | 3      |
|                          |      | Sodium Oxide (Na <sub>2</sub> O)                                 | 1      |
|                          |      | Potassium Oxide (K <sub>2</sub> O)                               | 1      |
|                          |      | Available Na <sub>2</sub> O                                      | 2      |
|                          |      | Available K <sub>2</sub> O                                       | 2      |
| Total Available Alkalies | 2    |  |        |

- 1 If a laboratory chooses to enroll in multiple Chemical sample programs (ex. Portland Cement, Blended Cement, Pozzolan), the laboratory is required to receive satisfactory results for all accredited tests in all sample programs in which the laboratory is enrolled. Please refer to Annex 2 for a comparison of the tests in each program.
- 2 Ratings or no data on these values will not be evaluated for accreditation purposes.
- 3 If a laboratory is accredited for C114 (Loss on Ignition) under the Pozzolan scope, the laboratory must enroll in the Pozzolan Chemical PSP program and is required to submit results for other analytes for which they are accredited under the Cementitious Chemical scope.



### Masonry Mortar

| AASHTO | ASTM  | Test Name             |  | Policy |
|--------|-------|-----------------------|--|--------|
| T137   | C185  | Air Content of Mortar | Percent Air                                | 1      |
|        |       |                       | Mix Water for Air Content                  | 1      |
|        |       |                       | Flow for Air Content (Suppressed)          | 1      |
| T106   | C109  | Compressive Strength  | Average 7-Day                              | 1      |
|        |       |                       | Average 28-Day                             | 1      |
|        |       |                       | Compressive Strength Mix Water             | 1      |
|        |       |                       | Flow for Compressive Strength (Suppressed) | 1      |
|        | C1506 | Water Retention       | Water Retention Mix Water                  | 1      |
|        |       |                       | Initial Flow (Suppressed)                  | 1      |
|        |       |                       | Final Flow                                 | 1      |
|        |       |                       | Water Retention                            | 1      |

1 Ratings in the Masonry Mortar program are evaluated for accreditation of these tests under the Masonry scope.



### Concrete Masonry Units

| AASHTO | ASTM | Test Name            | Policy |
|--------|------|----------------------|--------|
|        | C140 | Measuring            | 1, 2   |
|        |      | Absorption           | 1      |
|        |      | Compressive Strength | 1      |

**1** Low scores in Measuring, Absorption, and/or Compressive Strength will result in a suspension of C140; however, a laboratory that tests a blind CMU sample to resolve a C140 suspension need only test the item (Measuring, Absorption, and/or Compressive Strength) which led to the suspension.

**2** Measuring is evaluated by face shell thickness, web thickness, net area, density, and equivalent thickness. Low ratings/no results must occur on the same test value in order to be considered consecutive. Once negative action has occurred on one test value satisfactory results are needed on all test values.

### Steel Reinforcing Bar

| AASHTO | ASTM | Test Name                   | Policy |
|--------|------|-----------------------------|--------|
| T244   | A370 | Weight per Unit Length      | n/a    |
|        |      | Measurement of deformations | n/a    |
|        |      | Average Height              | n/a    |
|        |      | Gap                         | n/a    |
|        |      | Tensile Strength            | 1, 2   |
|        |      | Yield Strength              | 1, 2   |
|        |      | Elongation                  | 1, 2   |

**1** Only testing for tensile strength, elongation, and yield strength will be used for accreditation purposes.

**2** Low ratings / no results in the CCRL proficiency sample will result in suspensions for all types of rebar tested (M31/A615, A706, A970).



**Annex 1: CCRL Cement Physical Testing Proficiency Sample Program Comparison**

| Cement Tests |       |                                 | Proficiency Sample Programs |                |                |
|--------------|-------|---------------------------------|-----------------------------|----------------|----------------|
| AASHTO       | ASTM  | Test name                       | Portland Cement             | Blended Cement | Masonry Cement |
| T129         | C187  | Normal Consistency              | X                           | X              | X              |
| T131         | C191  | Time of Set – Vicat Needle      | X                           | X              |                |
| T154         | C266  | Time of Set – Gilmore Needle    | X                           |                | X              |
| T186         | C451  | Early Stiffening                | X                           |                |                |
| T107         | C151  | Autoclave Expansion             | X                           | X              | X              |
| T137         | C185  | Air Content of Mortar           | X                           | X              | X              |
| T133         | C188  | Density                         |                             | X              | X              |
| T106         | C109  | Compressive Strength            | X                           | X              | X              |
| T153         | C204  | Fineness – Blaine Apparatus     | X                           | X              |                |
| T192         | C430  | Fineness - No. 325 Sieve        | X                           | X              | X              |
|              | C1038 | Expansion of Cement Mortar Bars | X                           |                |                |
|              | C1702 | Heat of Hydration (Calorimetry) | X                           | X              |                |
|              | C1506 | Water Retention                 |                             |                | X              |



Annex 2: CCRL Cement Chemical Testing Proficiency Sample Program Comparison

| Cement Tests |                            |  | Proficiency Sample Programs |                |          |
|--------------|----------------------------|--|-----------------------------|----------------|----------|
| AASHTO       | ASTM                       | Test name  | Portland Cement             | Blended Cement | Pozzolan |
| T105<br>C114 |                            | Moisture Content                                       |                             |                | X        |
|              |                            | Silicon Dioxide (SiO <sub>2</sub> )                    | X                           | X              | X        |
|              |                            | Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )       | X                           | X              | X        |
|              |                            | Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )         | X                           | X              | X        |
|              |                            | Calcium Oxide (CaO)                                    | X                           | X              | X        |
|              |                            | Free Calcium Oxide [Free Lime] (C <sub>x</sub> )       | X                           |                |          |
|              |                            | Magnesium Oxide (MgO)                                  | X                           | X              | X        |
|              |                            | Sulfur Trioxide (SO <sub>3</sub> )                     | X                           | X              | X        |
|              |                            | Loss on Ignition (LOI)                                 | X                           | X              | X        |
|              |                            | Sodium Oxide (Na <sub>2</sub> O)                       | X                           | X              | X        |
|              |                            | Potassium Oxide (K <sub>2</sub> O)                     | X                           | X              | X        |
|              |                            | Strontium Oxide (SrO)                                  | X                           |                |          |
|              |                            | Titanium Dioxide (TiO <sub>2</sub> )                   | X                           | X              |          |
|              |                            | Phosphorous Pentoxide (P <sub>2</sub> O <sub>5</sub> ) | X                           | X              |          |
|              |                            | Zinc Oxide (ZnO)                                       | X                           | X              |          |
|              |                            | Manganic Oxide (Mn <sub>2</sub> O <sub>3</sub> )       | X                           | X              |          |
|              |                            | Chloride (Cl)  | X                           | X              |          |
|              |                            | Insoluble Residue (IR)                                 | X                           | X              |          |
|              |                            | Carbon Dioxide (CO <sub>2</sub> )                      | X                           |                |          |
|              |                            | Limestone Content                                      | X                           |                |          |
|              |                            | Chromium Oxide (Cr <sub>2</sub> O <sub>3</sub> )       | X                           | X              |          |
|              |                            | Tricalcium Silicate (C <sub>3</sub> S)                 | X                           |                |          |
|              |                            | Dicalcium Silicate (C <sub>2</sub> S)                  | X                           |                |          |
|              |                            | Tricalcium Aluminate (C <sub>3</sub> A)                | X                           |                |          |
|              |                            | Tetracalcium Aluminoferrite (C <sub>4</sub> AF)        | X                           |                |          |
|              |                            | Available Na <sub>2</sub> O                            |                             |                | X        |
|              | Available K <sub>2</sub> O |  |                             | X              |          |
|              | Total Available Alkalies   |  |                             | X              |          |





Revision Updates

| Revision Date | Revision Summary   |
|---------------|--|
| 1/10/2020     | Original Publication   |
| 6/16/2020     | <ul style="list-style-type: none"><li>• Editorial Changes</li><li>• Added rule 3b under the MAR sample and 5b under the HVM sample</li><li>• Added rule 5 under the VGA sample</li><li>• Added rule 1c under the HMI sample</li><li>• Added rule 2 under the Steel Reinforcing Bar sample</li><li>• Included T269/D3203 in rule 1 of the MAR sample and rule 3 of the HVM sample</li></ul> |
| 10/9/2020     | <ul style="list-style-type: none"><li>• Editorial Changes</li><li>• Added rule 5b under EML sample</li><li>• Added rule 4 under MAR sample</li><li>• Added rule 2 under SOL sample</li></ul>   |
| 4/1/2021      | <ul style="list-style-type: none"><li>• Revisions to rules regarding CCRL Cementitious programs</li><li>• Comparison tables added for cement and Pozzolan programs</li><li>• Update to CBR Rule 1</li><li>• Soil methods T288/G187, T289, D4972, T290, and T291 added to SOL table</li></ul>   |
| 5/21/2021     | <ul style="list-style-type: none"><li>• Removed C186 from Portland and Blended physical testing programs</li><li>• Added T97/C78 to concrete program</li><li>• Removed rules under Pozzolan that required participation for ratings that are always suppressed. If ratings are issued, satisfactory ratings are required.</li></ul>  |
| 8/6/2021      | <ul style="list-style-type: none"><li>• Added rule 5 to MAR and 6 to HVM</li></ul>   |
| 9/17/2021     | <ul style="list-style-type: none"><li>• Replaced AGF and AGC samples with AGG and AGD</li><li>• Added T186/C451 to Portland Physical Program. It is not a new addition to the program; it was previously not included in this document.</li></ul>  |
| 10/29/2021    | <ul style="list-style-type: none"><li>• Added T133/C188 to the Portland Cement program.</li><li>• Added Rule 3 to the Pozzolan program.</li></ul>  |