

REVISION OF SECTION 106  
HOT MIX ASPHALT TEST RESULT VERIFICATION AND DISPUTE RESOLUTION

Section 106 of the Standard Specifications is hereby revised for this project as follows:

Subsection 106.05 (b) shall include the following:

If the Contractor elects to question the Hot Mix Asphalt (HMA) acceptance test results, the steps outlined in CP 17 shall be followed. The results from the CP 17 resolution process shall be binding on both the Department and the Contractor. Requests for CP 17 process for all elements except density shall be submitted in writing to the Engineer within five working days from the date the Contractor receives acceptance test data from the Engineer. The specific element questioned shall be identified in writing. All requests for the CP 17 process for the density element shall be submitted in writing to the Engineer within 24 hours of receiving test data from the Engineer.

The Contractor shall choose either the CDOT Materials and Geotechnical Branch or a consultant laboratory not associated with the project to perform the third party testing. The Contractor shall document his choice in writing at the Pre-Paving Conference. In the event a consultant laboratory is chosen, the CDOT Materials and Geotechnical Branch will determine the consultant that will be used from a pre-established list and ensure there is no conflict of interest.

In the event third party testing is required, the responsibility for the testing expenses shall be assigned in accordance with CP 17. The costs for testing are shown in CP 17, Table 17-2.

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**Colorado Procedure 17-09**

*Standard Practice for*

**Hot Mix Asphalt Test Result Verification and Dispute Resolution**

**1. SCOPE**

1.1 The purpose of this Hot Mix Asphalt (HMA) Test Result Verification and Dispute Resolution Procedure is to establish a process to address questions over acceptance test result differences between the Contractor and the Colorado Department of Transportation (CDOT) in the properties and pay for HMA. Outliers will be addressed using the 2v process listed in the Revision of Sections 105 and 106 of the Standard Special Provisions.

**2. REFERENCED DOCUMENTS**

- 2.1 CDOT Field Materials Manual
- 2.2 CDOT Lab Manual of Test Procedures
- 2.3 AASHTO Test Procedures
- 2.4 ASTM Test Procedures

**3. DEFINITIONS**

- 3.1 Check Testing – as defined in CP-13.

3.2 Blind Split Sample – Sample submitted by the Engineer to the CDOT Materials and Geotechnical Branch to resolve differences in test results between QA testing and QC testing in accordance with this procedure. This sample shall be a split sample, in accordance with procedures on the Field Materials Manual

**4. REQUIRED CONDITIONS**

4.1 The Check Testing provisions of the Contract must have been satisfactorily completed in accordance with CP 13.

4.2 If the check testing has not been satisfactorily completed in accordance with the contract, no challenge of the QA results will be allowed.

4.3 Test result differences shall be larger than the tolerances listed in Table 17-1 or no dispute will be allowed.

4.4 If a documented split sample for dispute resolution is not submitted to the Engineer, dispute resolution testing will not be allowed

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**TABLE 17-1: Required Test Result Differences to Qualify for Dispute Resolution Testing**

Element	Type of Test	Difference Between Test Results
Gradation: #8 and larger Sieves #16 to #100 Sieves #200 Sieve	CP 31A	≥ 5 %
	CP 31A	≥ 3 %
	CP 31B	≥ 2.0 %
Asphalt Content	CP 85	≥ 0.27 %
	CP-L 5120	≥ 0.27 %
Asphalt Compaction	CP 81	≥ 1.5 %
	CP 44	≥ 1.5 %
Asphalt Compaction Longitudinal Joints	CP 44	≥ 1.5%
Air Voids	CP-L 5115	≥ 0.7 %
Voids in Mineral Aggregate	CP 48	≥ 0.7 %

4.5 For any disputed property, the following steps will be followed:

4.5.1 Level 1 – Test Result Questioned

Affected parties will immediately notify the Engineer and describe the issue in writing.

- Project and Contractor personnel will perform an investigation, review data, and possibly retest samples.
- All Level 1 tasks must be completed within 3 working days from the time written notification is received.

4.5.2 Level 2 – Issue Not Resolved by Level 1

Engineer and Contractor personnel will perform an investigation and review data to determine if the questioned sample is an isolated sample (test differences outside of multi-lab precision).

- QC and QA must be complete and up-to-date.
- If the dispute is a result of a bias between the QC and Acceptance test results, the bias should be resolved through check testing (CP 13) before determining if Level 3 should be used.
- All Level 2 tasks must be completed within 8 working days from the time written notification is received.

4.5.3 Level 3 – Issue Not Resolved by Level 2

- Blind split sample will be submitted to the CDOT Staff Materials Lab within 18 working days from the time written notification is received.
- Sample testing shall be completed by Staff Materials or third party lab within 5 working days of sample receipt.
- CDOT and Contractor Personnel will review findings of the third party lab and resolve within 5 working days.
- Third Party results entered into pay program.

**5. SUBMISSION OF BLIND SAMPLE**

5.1 The Contractor will provide and the Engineer will retain a split sample of sufficient quantity from each acceptance test to perform dispute resolution testing except for cores used for density. (See Section 6) When materials are sampled for AC content correlation or correction in accordance with CP 85 or CP-L 5120, sufficient quantity shall be split out and retained for the dispute resolution laboratory. All samples will be retained by the Engineer.

5.2 If third party testing is required in accordance with CP 17, a blind split samples will be

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sent to the CDOT Materials and Geotechnical Branch. The blind split samples will either be tested by the CDOT Materials and Geotechnical Branch or forwarded to a consultant laboratory in accordance with the selection made by the contractor. The test results from the blind split samples will be used in the pay factor calculation in place of the test results that are questioned.

5.3 When a volumetric property is questioned, all volumetric properties shall be retested and the new values used for the calculation of dispute resolution pay factors. Recent QC data for aggregate bulk specific gravity may also be requested and evaluated during dispute testing.

5.4 For gradation disputes, the percent passing all specified sieves shall be retested and included in the calculation of dispute resolution pay factors.

5.5 All properties will be tested using the method used for project acceptance. For example, if acceptance testing for % AC content is based on the nuclear AC gauge, the dispute resolution sample shall be -tested using a nuclear AC gauge.

5.6 When a dispute resolution blind split sample is submitted to the Materials and Geotechnical Branch, the sample will be submitted by the Engineer using a

CDOT Form #157. The Form #157 shall contain only the project number, the Form #43 number representing the sample, and the tests requested.

## 6. DENSITY DISPUTES

6.1 As addressed in the Specification, disputes involving mat and longitudinal joint density, shall be resolved using roadway cores. The cores shall be taken by the Contractor within the time required by the specification.

6.2 Where cores are used for density acceptance, for example, SMA or Longitudinal Joints, dispute resolution will not be allowed unless companion QC cores were taken at the same time and with the edge of the core within six inches of the acceptance cores. Dispute resolution cores will also be taken within six inches of the edge of the acceptance cores.

6.3 Where acceptance for density was made using a nuclear density gauge, dispute resolution cores will be taken at the same location as the density measurements.

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## 7. WITNESSING SAMPLE TESTING

7.1 The Contractor or his representative may witness the testing of the disputed sample if tested by the Materials and Geotechnical Branch. One testing witness will be allowed and shall be identified in writing along with his qualifications prior to the testing. The CDOT Asphalt Program Manager will schedule the testing time and will notify the designated witness. Witnessing of testing shall be by visual observation only, no comments or discussion of the testing with the technicians performing the tests will be allowed. Questions on the testing procedures shall be directed to the CDOT Flexible Pavement Laboratory Manager after completion of testing. If the witness has any formal comments on the tests, they shall be submitted in writing to the Engineer with a copy to the CDOT Asphalt Program Manager prior to scheduled distribution of the test results.

## 8. RESPONSIBILITY FOR TESTING EXPENSE

8.1 For single property disputes such as asphalt content on a gradation acceptance project, the lab whose result is furthest from the dispute resolution lab will pay for testing.

8.2 For disputes where more than a single property is affected by the retest, the lab furthest from the dispute resolution lab on the property questioned will pay for the testing, but the entire test result will be entered into the pay calculations for the material represented by that sample. For example:

8.2.1 Gradation - The test results for the disputed sieve will be used to determine who is furthest, but the entire gradation will be entered into the pay formula.

8.2.2 Volumetric properties - VMA, Air Voids and % AC will be entered into the formula, while payment for testing will be determined based on the results for the single property disputed.

8.3 In case of a tie, the testing cost will be divided equally between both parties.

8.4 The costs for testing are shown in Table 17-2 below. An administrative cost of \$230 per sample will be charged in addition to the costs shown.

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**Costs for Third Party Testing**

<b>Test</b>	<b>Cost</b>
AC Ignition Correction	\$318
AC Nuclear Correction	\$373
AC content by Ignition	\$109
AC content by Nuclear	\$86
Gradation	\$115
Mixture Volumetrics (Rice, Air Voids, VMA)	\$338
Core Bulk Specific Gravity	\$32
Lottman	\$379

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