

**Section 504. FURNISHING AND PLACING HOT MIX ASPHALT MIXTURES
(QUALITY ASSURANCE AND ACCEPTANCE)**

504.01 Description. The Engineer shall perform the acceptance testing for hot mix asphalt (HMA). All personnel performing quality assurance sampling and testing shall be qualified through an MDOT approved program. Nothing herein shall be construed as waiving the requirements of sections 501, 502 and 503 or relieving the Contractor of the obligation to furnish and install a finished product which conforms to the requirements of the contract.

A. Quality Assurance Considerations. The following general items will be used for quality assurance considerations on HMA mixtures. Specific details will be found in the contract documents.

1. Sampling and Testing
2. Density and Thickness
3. Dispute Resolution
4. Documentation
5. Price Adjustments
6. Measurement and Payment

B. Additional Acceptance Considerations. The following general items will be used for acceptance considerations on HMA mixtures. Specific details will be found in the contract documents.

1. Segregation
2. Ride Quality
1. Flushing
1. Rutting
2. Cracking

C. Acceptance Testing of Projects With Small Tonnage.

Unless otherwise specified, this procedure shall be used on projects when the total tonnage does not exceed 2000 tons. The Engineer will sample and perform all of the acceptance testing. The method of acceptance testing and density measurement shall be discussed prior to the placement of any HMA.

The sampling method and testing option will be determined by the Engineer. The total quantity of each mixture type shall be divided into three approximately equal sublots. One

random sample shall be taken per subplot. Each sample will be split and identified. One split sample will be randomly chosen for Department testing. The remaining split will be retained by the Department for possible referee testing by the Construction and Technology Division (central laboratory).

If the test results are within the single test tolerance shown in Table 504-1, then the HMA will be accepted. If the test results exceed the tolerances of Table 504-1, then the remaining samples will be tested. If the average of the test results meets the lot average tolerance of Table 504-1, then the HMA will be accepted. If these criteria are not satisfied, apply the HMA price adjustments detailed in the contract documents.

**Table 504-1 HMA Quality Assurance Testing Tolerances
(+ or -) from Job Mix Formula (JMF)**

Parameter	Single Test	Lot Average
Air Voids	1.00%	0.60%
Voids in Mineral Aggregate (VMA) (a)	1.20%	0.75% (b)
Maximum Specific Gravity (G_{mm}) (a)	0.019	0.012
Asphalt Binder Content *	0.50%	0.35%
a. Parameters with Target Values		
b. Or less determined by VMA Value detailed in the contract documents.		

At the Engineer's request, referee testing may be performed by the central laboratory on all or a portion of the remaining subplot split samples. If the Contractor provides quality control test results that are within the lot average tolerances of Table 504-1, the Contractor may request the Engineer to review these test results and consider referee testing. All referee samples will be properly identified and sent to the central laboratory for testing. Using the same test method option, the referee sample will be tested for all QA parameters. All test data will be delivered to the Engineer. The laboratory test results may be used for evaluation or replace any or all of the subplot split sample test results.

The Contractor is responsible for establishing the compaction effort for each pavement layer in order to achieve the required in place density values. After the final rolling, the Engineer will use either a nuclear density gauge or cores using the G_{mm} from the JMF for acceptance. A minimum of six random locations per mixture type will be tested for density. If the average of the density values is equal to or greater than 92.0 percent of the G_{mm} , the pavement density will be accepted. If the average of the six density tests is less than 92.0 percent of the G_{mm} , apply the HMA unit price adjustments included in the contract documents.