

**MINIMUM QUALITY ASSURANCE TESTING REQUIREMENTS ASPHALT CONCRETE  
PAVEMENT - EPS SPEC 3.50, MANAGED QA  
(Projects with Maximum Specific Gravity Testing)**

MQA/17	TEST	STANDARD	MINIMUM FREQUENCY	ATT- DATA SHEETS
	<b>SAMPLING</b>			
1.	Mix	ATT-37	<sup>1</sup> Five per each Lot (full Production)	
2.	Cores (Obtained by Contractor) Stratified Random Test Sites for ACP Projects	ATT-56	Each Lot	<a href="#">MAT 6-82</a>
	Coring (Monitor Contractor's Coring)	ATT-5	One per Segment	
3.	Aggregate	ATT-38	As required for Correction Factor	
	<b>MIX TESTING</b>			
1.	Asphalt Content	ATT-12 Part II or ATT-74	<sup>2</sup> One per Segment for each QA Acceptance Lot	<a href="#">MAT 6-79</a> <a href="#">MAT 6- 98</a> <a href="#">MAT 6- 99</a> <a href="#">MAT 6- 100</a> <a href="#">MAT 6-101</a> <a href="#">MAT 6-75</a>
2.	Correction Factor, Extracted Asphalt Content	ATT-12 Part III	As specified in ATT-12 Part III	
3.	Correction Factor, Ignition Asphalt Content	ATT-74	As specified in ATT-74 Part II	<a href="#">MAT 6-99</a>
4.	Mix Moisture Content	ATT-15	<sup>1</sup> Five tests per Lot (Full Production)	<a href="#">MAT 6-80</a>
5.	Field Formed Marshall Briquettes	ATT-13	<sup>1</sup> Five tests per Lot (Full Production)	<a href="#">MAT 6-80</a>
6.	Maximum Specific Gravity of Bituminous Mixes (G <sub>mm</sub> )	ASTM D2041	<sup>1</sup> Five tests per Lot (Full Production)	
	<b>AGGREGATE TESTING</b>			
1.	Extraction or Ignition Sieve Analysis	ATT-26	Each sample, QA Acceptance Lot	<a href="#">MAT 6-80</a>
2.	Correction Factor Aggregate Sieve Analysis	ATT-26	As required	<a href="#">MAT 6-75</a> <a href="#">MAT 6-25</a>
	<b>OTHER RELATED TESTING</b>			
1.	Density Immersion Method, Saturated Surface Dry	ATT-7	Each core or formed specimen	<a href="#">MAT 6-80</a>
2.	Voids Calculations, Cores or Formed Specimens	ATT-36 and % by G <sub>mm</sub>	Each core or formed specimen	<a href="#">MAT 6-80</a> <a href="#">MAT 6-79</a> (See Note 3)
3.	Percent Compaction, Asphalt Concrete Pavement	ATT-67	One per Segment	<a href="#">MAT 6-79</a>
	<b>PAVEMENT SURFACE</b>			
1.	Smoothness Testing using IRI Criteria	See Contract Documents	Each Sublot	Contractor to test and report
2.	Segregation	Paving Guidelines & Segregation Rating Manual	Each Lane·Km	<a href="#">MAT 6-95</a>

<b>REPORTING</b>  1. All Approved Asphalt Mix Designs and Changes in Job Mix Formula	Email completed <a href="#">Asphalt Mix Design &amp; JMF Summary Sheet</a> to Project Sponsor and Surface Engineering section at <a href="mailto:trans.constructqa@gov.ab.ca">trans.constructqa@gov.ab.ca</a> . Provide written documentation to Contractor for approved designs and JMF changes. Included copies of all mix designs and JMF approvals in Final Details.
2. Lot Paving Report	Complete <a href="#">MAT 6-78</a> Lot Paving Report. Submit on a weekly basis to Project Sponsor and to <a href="mailto:trans.constructqa@gov.ab.ca">trans.constructqa@gov.ab.ca</a> . Use appropriate Lot Paving Report form complete with G <sub>mm</sub> Air Voids.
3. Pavement Smoothness & Segregation	IRI reports to be submitted to <a href="mailto:trans.constructqa@gov.ab.ca">trans.constructqa@gov.ab.ca</a> include .ppf data files, ProVAL reports (.pdf) and payment assessment spreadsheets (.xls) as outlined in CB #25 Pavement Smoothness Testing Using IRI Criteria.  Include <a href="#">MAT 6-95s</a> in Final Details as outlined in Engineering Consultant Guidelines for Highway and Bridge Projects - Volume 2, Construction Contract Administration. Email early submission copy of <a href="#">Final Details ACP EPS</a> to <a href="mailto:trans.constructqa@gov.ab.ca">trans.constructqa@gov.ab.ca</a> within one month of paving completion.
<p><sup>1</sup> Note: One sample for the first two hours of production; one immediately after, remaining samples at random over the rest of the day. Full production is considered when a Lot has more than eight hours of plant production.</p> <p><sup>2</sup> Note: On QC Acceptance Lots a minimum of 1 asphalt content test on loose mix using test procedures specified in Table 3.50.4. TEST METHODS ON MANAGED QA PROJECTS</p> <p><sup>3</sup> Note: <b>Marshall air voids determined by Maximum Specific Gravity (G<sub>mm</sub>) are to be reported for information only and not to be used for specification compliance.</b></p> $\text{Air Voids (\%)} = \left( \frac{G_{mm} - (G_{mb})}{G_{mm}} \right) \times 100$ <p>Where: G<sub>mm</sub> = Maximum specific gravity, and  G<sub>mb</sub> = Bulk Specific Gravity of Marshall or core specimen</p> <p>Note: Density is a synonymous term often used within industry in place of Specific Gravity.</p>	

**Testing requirements as per MQA specifications are briefly summarized as follows:**

- On all Lots (QA Acceptance or QC Acceptance) the Consultant is to sample loose mix from behind the paver to form Marshall briquettes and determine Maximum Specific Gravity (G<sub>mm</sub>).
- For each sampling instance, the Consultant shall split and retain a minimum 5000 g sample for the Contractor for determination of Maximum Specific Gravity.
- **Marshall air voids determined by Maximum Specific Gravity (G<sub>mm</sub>) are to be reported for information only and not to be used for specification compliance.**
- Contractor to obtain all core samples at site locations determined by the Consultant.
- Materials processing and QA testing is to be done in a laboratory facility (mobile or stationary) that is no further than one hour from the project.
- Contractor quality control test results for asphalt content and gradation will be used for conditional acceptance of most Lots. For these QC Acceptance Lots the Consultant is to do a minimum of one asphalt content test per Lot on loose mix using the specified test procedures. For QA Acceptance Lots, report only the QA test results on the Lot Paving Report. For QC Acceptance Lots, report all available QA results and the QC test results for asphalt content and gradation. Indicate on the Lot Paving Report which are QC and which are QA.
- On QC Acceptance Lots the Target Asphalt Content is to be used to determine air voids.
- The minimum number of QA Lots in which full QA testing is completed is outlined in section 3.50.1.2 Definitions of Specification 3.50 ACP-EPS.