

**MINIMUM QUALITY ASSURANCE TESTING REQUIREMENTS
HOT IN-PLACE RECYCLED ASPHALT CONCRETE PAVEMENT (HIR)**

HIRQA/12 TEST	STANDARD	MINIMUM FREQUENCY	ATT- DATA SHEETS
SAMPLING 1. Mix 2. Cores (Obtained by Contractor) Stratified Random Test Sites for ACP Projects provided by Consultant Consultant Monitors Contractor's Coring	ATT-37 ATT-56 ATT-5	¹ Five per Lot (full Production) Each Lot One per Segment	 MAT 6-82
MIX TESTING 1. Asphalt Recovery by Abson or Evaporator 2. Standard Penetration of Recovered Asphalt 3. Asphalt Content 4. Mix Moisture Content 5. Field Formed Marshall Briquettes	ASTM D1856 or ASTM 5404 ASTM D5 ATT-12 Part II ATT-15 ATT-13	One 5 000 g sample per typical Lot ² One per Asphalt Recovery ² One per Asphalt Recovery. Each Mix Sample Each Mix Sample	 MAT 6-79 MAT 6-80 MAT 6-80
AGGREGATE TESTING 1. Extraction Sieve Analysis	ATT-26	One per Asphalt Recovery	MAT 6-80
OTHER RELATED TESTING 1. Density Immersion Method, Saturated Surface Dry 2. Voids Calculations, Cores or Formed Specimens 3. Maximum Specific Gravity of Bituminous mix(Gmm) 4. Percent Compaction, ACP (% of Gmm)	ATT-7 ASTM D3203 ASTM D2041	Each core or formed specimen ⁴ Each core or formed specimen Each mix sample ³ One per Segment	MAT 6-80 MAT 6-80 MAT 6-79 MAT 6-79
PAVEMENT SURFACE 1. Smoothness ⁵ 2. Segregation	ATT-59 Paving Guidelines & Segregation Rating Manual	Top Lift Top Lift	MAT 6-73 MAT 6-95
REPORTING 1. HIR Lot Paving Report 2. Profilograph & Segregation	Complete MAT 6-78H HIR Lot Paving Report. Submit to the Project Sponsor on a weekly basis and email to trans.constructqa@gov.ab.ca. Include MAT 6-73 and MAT 6-95s in Final Details as outlined in Engineering Consultant Guidelines for Highway and Bridge Projects - Volume 2, Construction Contract Administration. Sent early submission copy to Surface Engineering & Aggregates Section by email to trans.constructqa@gov.ab.ca within one month of paving completion.		

¹ Note: One sample for the first 0.5 lane kilometres of equipment operation; the second sample shortly thereafter; remaining samples at random over the remainder of the day(s). Full production is considered when a Lot is approximately 3 lane kilometres of equipment operation. For each sampling instance two duplicate 5000 gram samples shall be bagged, identified and stored. One of the duplicate samples will be used for possible penetration testing of the recovered asphalt. The second duplicate sample is to be available for possible appeal testing for Marshall air voids.

² Note: Up to five per Lot if penetration results of the first sample is in price reduction/rejection range.

³ Note: Frequency refers to Stratified Random Testing. Non-Random test frequency shall be 5 tests per Lot. (See Specification 3.50.4.4.2.4, Exclusions to Random Sampling)

⁴ Note: Requires the determination of the mixture's Theoretical Maximum Specific Gravity for each mix sample.

⁵ Note: California Profilograph method or International Roughness Index method using inertial profilers (testing provided by the Contractor) as outlined in contract.

QA testing requirements as per HIR specifications are briefly summarized as follows:

- Contractor to obtain all core samples at site locations determined by the Consultant.
- Core densities for all Lots are to be determined by the Consultant.
- Consultant to sample loose mix from behind the paver to form Marshall briquettes and determine Maximum Specific Gravities (Five each per Lot under full production). All of these tests are to be done in an on-site lab (i.e. located within one hour of the project). For each sampling of loose mix the consultant is to bag, identify and store two 5,000 grams.
- Asphalt recovery and penetration testing of the recovered asphalt shall be completed for each Lot on one of the duplicate loose mix samples collected. No further asphalt testing is required for that Lot if the first test result does not fall within a penalty or reject assessment. If the first test result does fall within the range of penalty or reject then the remaining split samples for that Lot shall be tested for assessment purposes. If the test results for asphalt penetration are within the limits of Figure 1 of the HIR specification amendment for three consecutive Lots, the testing frequency may be reduced to one per five Lots of HIR production.
- Contractor quality control test results for asphalt content and gradation are to be reported on the HIR Lot Paving Report for all Lots.
- Actual testing requirements may be modified by contract special provisions.
- At time of publication the Department is transitioning to the use of inertial profilers and International Roughness Index (IRI) criteria for pavement smoothness. Reporting requirements are still to be finalized and will be released in the form of a Construction Bulletin or other means.