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Porous Asphalt

HMA mixtures for Porous Asphalt Pavements will be Open Graded mixtures designed and produced in accordance with current INDOT Standard Specifications Section 401 as modified by the following exceptions and additions to the specification. Items 2 thru 6 apply only to Porous Asphalt Wearing Course.

1. Description ref: 401.01

- a Porous Asphalt will be the HMA layers of a Porous Pavement System Design.
- b Porous Asphalt Wearing Course will be the top HMA layer subject to traffic.
- c A job mix formula (JMF) shall be developed for Porous Wearing Course to meet the requirements of Sections 2 to 6.

2. Aggregates ref: 401.03

- a Coarse aggregates will be steel slag, limestone or crushed gravel with a crush content of $\geq 90\%$ two face and 100% one face. LA Abrasion will be $< 35\%$.

3. Binder Selection ref: 401.03

- a PG 76-22, or
- b PG 70-22 with fibers.

4. Mix Design Requirements ref: 401.05

- a $\geq 16.0\%$ air voids using ASTM D 6752, Vacuum Sealing method.
- b $\geq 26.0\%$ VMA using ASTM D 6752, Vacuum Sealing method.
- c Draindown test $\leq 0.3\%$ (Fibers may be used to meet this requirement.)

5. Gyrotory Compaction ref: 401.05

- a 20 gyrations at 260 \pm 9 degrees F

6. Gradation Job Mix Formula Design Requirements and Production Tolerances ref: 401.05

Sieve	JMF Requirement	Production Tolerances From JMF
19.0mm	100%	-
12.5mm	70-90%	+/- 5%
9.5mm	40-65%	+/- 5%
4.75mm	15-30%	+/- 5%
2.36mm	8-15%	+/- 5%
0.60mm	5-9%	+/- 2%
0.075mm	1-8%	+/- 2%
Binder%	5.5% min	+/- 0.7%

7. Quality Control ref: 401.02, 401.09

- a The Porous HMA shall be supplied from a certified HMA plant in accordance with ITM 583: Certified Volumetric Hot Mix Asphalt Producer Program.
- b Contractor Quality Control will include a minimum of one truck sample a day for up to 600 tons of production. Tests will be performed to determine gradation, binder content, air voids, VMA and draindown. Air voids and VMA will be within +/- 3.0% of the JMF. Asphalt binder content shall be +/- 0.7% as per INDOT Section 402.09.

8. Construction ref: 401.10

- a The porous asphalt layers will be placed in lifts up to 4” thick through a suitable paver; handwork will be kept to a minimum. The asphalt should be rolled two or three passes with a ten ton roller. Traffic should be restricted for 24 hours after final rolling.

9. Porosity Test

- a Hose test with 5 gallons per minute minimum. There should be immediate infiltration with no puddles.

10. Quality Acceptance ref: 401.09, 402.09

- a The Contractor shall certify that the mixture meets the requirements in Section 7.

11. References

AASHTO Standards

- a T 11 Materials Finer than 0.075mm Sieve in Mineral Aggregates by Washing
- b T 19 Unit Weight and Voids in Aggregate
- c T 27 Sieve Analysis of Fine and Coarse Aggregates
- d T 30 Mechanical Analysis of Extracted Aggregate
- e T 90 Determining the Plastic Limit and Plasticity Index of Soils
- f T 209 Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt Paving Mixtures
- g T 248 Reducing Samples of Aggregate to Testing Size
- h T 269 Percent Air Voids in Compacted Dense and Open Asphalt Mixtures
- i T 304 Uncompacted Void Content of Fine Aggregate
- j T 305 Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures
- k T 308 Determining the Asphalt Binder Content of Hot Mix Asphalt by the Ignition Method
- l T 312 Preparing and Determining the Density of HMA Specimens by Means of the Superpave Gyrotory Compactor
- m T 331 Bulk Specific Gravity and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method

ASTM Standards

- a D 5821 Determining the Percentage of Fractured Particles in Coarse Aggregate
- b D 6752 Bulk Specific Gravity of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing