METHOD OF SAMPLING AND TESTING
MT 332-17
GYRATORY COMPACTION OF BITUMINOUS MIXTURES
(Modified AASHTO T 312*)*

MT 332 is identical to AASHTO T 312 except for the following additions:

1 Section 11 – Include the following calculations.

% Air Voids (Va)

$$V_a = 100 \times \left(\frac{G_{mm} - G_{mb}}{G_{mm}}\right)$$

Where:
G_{mm} = Maximum specific gravity of paving mixture (Rice)
G_{mb} = Bulk specific gravity of compacted mixture

Record and round to the nearest 0.1%

Voids in the Mineral Aggregate (VMA)

$$VMA = 100 - \left(\frac{G_{mb} \times P_s}{G_{sb}}\right)$$

Where:
G_{mb} = Bulk specific gravity of compacted mixture
P_s = Aggregate content, percent by total mass of mixture
G_{sb} = Bulk specific gravity of aggregate

Record and round to the nearest whole number (1%)

Voids Filled with Asphalt (VFA)

$$VFA = 100 \times \left(\frac{VMA - V_a}{VMA}\right)$$

Record and round to the nearest 0.1%

Dust/Asphalt Ratio

$$DA = \left(\frac{P_{200} - 1}{P_b}\right)$$

Where:
DA = Dust to Asphalt Ratio,
P_{200} = Aggregate content passing the 0.075mm sieve, the percent by mass of aggregate (MT 320)
P_b = Asphalt Content, percent by total mass of mixture (MT 319)

Record and round to the nearest 0.1%

Note – The Dust/Asphalt ratio is used during mix design and field production.

Dust Proportion

$$DP = \left(\frac{P_{200} - 1}{P_{be}}\right)$$

Where:
DP = Dust Proportion,
P_{200} = Aggregate content passing the 0.075mm sieve, the percent by mass of aggregate (MT 320)
P_{be} = Effective asphalt content, percent by total mass of mixture

Note – The Dust Proportion is used during mix design.

Effective Asphalt Content

$$P_{be} = -(P_s \times G_b) \times \left(\frac{G_{se} - G_{sb}}{G_{se} \times G_{sb}}\right) + P_b$$

Where:
P_{be} = Effective asphalt content, percent by total mass of mixture
P_s = Aggregate content, percent by total mass of mixture
G_b = Specific gravity of asphalt
G_{se} = Effective specific gravity of aggregate
G_{sb} = Bulk specific gravity of aggregate
P_b = Asphalt Content, percent by total mass of mixture

Record and round to the nearest 0.1%.