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**

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

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%. 