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Determination of the Voids Filled with Asphalt

1. SCOPE

1.1 The voids filled with asphalt (VFA) is the percentage of voids in the mineral aggregate (VMA) filled with asphalt. VFA limits VMA. Too much VMA can result in an unstable, rich mix.

1.2 VFA in this procedure is calculated in accordance with the Asphalt Institute's "Mix Design Methods for Asphalt Concrete (MS-2)" manual.

2. CALCULATION

2.1 VFA is computed as follows:

$$VFA = 100 \times \frac{VMA - V_a}{VMA}$$

Where:

VFA = percent volume of VMA filled with asphalt, to the nearest 0.1%.
VMA = percent voids in the mineral aggregate, to the nearest 0.1%.
V_a = percent air voids of the total mix volume (CT 367), to the nearest 0.1%.

3. EXAMPLE

Given:

VMA = 14.7% and V_a = 5.0%

Calculate VFA:

$$VFA = 100 \times \frac{VMA - V_a}{VMA} = 100 \times \frac{14.7 - 5.0}{14.7} = \underline{\underline{66.0}}\%$$