Comment on Clause 4.5 of IS 19008:2023:

The formula for calculating binder content (in percent) provided under Clause 4.5 of IS 19008:2023 appears to contain an error. Specifically, the mass of mineral matter (W4) is incorrectly added in the numerator, whereas it should be subtracted. This miscalculation would result in a reported binder content that is higher than the actual binder content.

4.5 Calculation

Bitumen Content, percent = $\left(\frac{(W1-W2)-(W3-W4)}{(W1-W2)}\right) \times 100$

where

W1 = mass, in g, of test portion taken;
W2 = mass, in g, of water in the test portion;
W3 = mass, in g, of the extracted aggregate; and
W4 = mass, in g, of the mineral matter in the total volume of extract.

Binder Content Calculation as per Clause 4.5 of IS 19008 :2023

Proposed modification

The formulae for determination of binder content may be corrected in line with Clause 14 of ASTM D2172-24.

14. Calculation of Asphalt Binder Content

14.1 Calculate the percent asphalt binder content in the test portion as follows:

$$\text{Asphalt binder content, \%} = \left[\frac{(W_1 - W_2) - (W_3 + W_4)}{W_1 - W_2}\right] \times 100 \quad (4)$$

where:

W_1 = mass of test portion,
W_2 = mass of water in the test portion,
W_3 = mass of the extracted mineral aggregate, and
W_4 = mass of the mineral matter in the extract.

NOTE 11—When ashless filter rings are not used, add the increase in mass of the felt filter ring to W_4.

Binder Content Calculation as per Clause 14 of ASTM D2172-24

This correction ensures that the binder content calculation accurately reflects the actual amount of binder by appropriately accounting for both the extracted aggregate and the mineral matter in the sample.

Aravind Anil Kumar
Assistant Director
Kerala Highway Research Institute
Public Works Department
Government of Kerala