

# Abstract

Asphalt adsorption by aggregates is an important parameter considered in Hot Mix Asphalt (HMA) mix design. In the present study, an attempt has been made to compare asphalt adsorption obtained from volumetric calculations with microscopic observations. Four different aggregates within size 50-80 mm are used for the study. Volumetric measurements are carried out on individual aggregates to calculate percentage of adsorbed asphalt binder. The same aggregates are cut and the depth of asphalt binder penetration is measured using a optical microscope after grinding and polishing of the sample. The depth of asphalt binder penetration obtained from microscopic observation is used to quantify the adsorbed binder. The results indicate that the microscopic studies overestimate the percentage asphalt binder adsorbed. Further, scanning Electron Microscope (SEM) with Energy dispersive X-ray spectroscopy (EDX) is used to investigate the reasons for the overestimation of the results. Study suggests that asphalt adsorption into aggregates does not happen in a uniform concentration and up to a fixed depth, rather the adsorption could be discrete, selective or graded.

Key words: Absorption, Adsorption, Optical microscope, Microscopic study, Volumetric study