

# Use of Reclaimed Asphalt Pavement (RAP) for Road Construction in Sri Lanka

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## Abstract

Recycling technologies on maintenance and rehabilitation of asphalt pavements have been amplified in many countries. Because cost and energy consumption are minimized using Reclaimed Asphalt Pavement (RAP). In this study, the suitability of RAP materials for Sri Lankan roads was analysed by Marshall Mix design. Different percentages of RAP were mixed with virgin aggregates and binder, to conduct the Marshall Test. The gradation of the total combined aggregates and properties of the binder from RAP can have an impact on the results of the Marshall Test. Methods to find the effective specific gravity of RAP and specific gravity of RAP binder were derived from the manual series-2 (MS-2), asphalt mix design methods of asphalt institute. Results of air voids, voids in mineral aggregates, stability, and flow were investigated for each percentage of RAP mix specimen. Natural oxidation of RAP binder was analysed under Fourier Transform Infrared Spectroscopy (FTIR) using the presence of carbonyl bond and sulphur oxide bond. The range of 20% - 30% RAP content of asphalt concrete would be recommended to fulfil the requirements of the Institute of Construction Training and Development (ICTAD) specification for asphalt wearing course and this is one of the sustainable solutions for road construction practices in Sri Lanka.

**Key words:** RAP, Asphalt, Gradation, Marshall, FTIR

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