

Abstract

Reclaimed asphalt pavement material (RAPM) is generated during rehabilitation and maintenance of existing asphalt pavements. RAPM contains asphalt coated aggregates, dust layer and agglomerated particles. RAPM has traditionally been used as recycled aggregate in new asphalt pavements, a large portion of this material remains unused. Using RAPM in cement concrete is one possible application for this recycled material. From earlier studies it is evident that due to replacement of natural aggregate (NA) with RAPM, mechanical properties such as compressive strength, flexural strength, split tensile strength are reduced and this reduction is proportional to percentage replacement of NA with RAPM, higher replacement percentage will cause more reduction in mechanical properties. Reduction of workability of concrete also reported by various literature. Primary causes for reduction of RAPM properties are presence of dust layer, asphalt film and agglomerated particles.

Interfacial transition zone (ITZ) between cement paste and aggregate is most important interface in concrete. Addition of RAP aggregate result in larger and more porous ITZ in composite concrete with less amount of calcium silicate hydrate (C-S-H) and calcium hydroxide (C-H).

This study has evaluated the potential of using RAPM in cement concrete. Most of the previous studies have been done on replacement of only coarse RAP aggregate with NA aggregate and suggested replacement up to 50 percentage. Scope of this work includes replacement of both coarse RAP aggregate as well as fine RAP aggregate. This study involves evaluation of concrete mixtures produced with various proportion of coarse and

fine RAP aggregate. To accommodate larger proportion of RAPM processing of RAP aggregate has been done.

Key words: RAPM, NA, ITZ, C-S-H, C-H