A STUDY INTO THE ABSORPTION PROPERTY OF RECYCLED CONCRETE AND RECLAIMED ASPHALT MIXES

Vahid Ayan*
PhD Researcher, Email: V.Ayan@kingston.ac.uk
Seyed Masoud Nasr Azadani
Assistant Professor, Iran University of Science & Technology, Email:Azadani@iust.ac.ir. Department of Railway Engineering, Iran University of Science & Technology, Tehran, Iran.
Joshua R Omer
Senior Lecturer, Kingston University, UK, Email: j.r.omer@kingston.ac.uk
Mukesh C Limbachiya
Professor, Kingston University, UK, E-mail: m.limbachiya@kingston.ac.uk
*Kingston University, Penrhyn Road, Kingston upon Thames, KT1 2EE, UK, Tel: +44 7942732544

ABSTRACT
High water absorption of Recycled Concrete Aggregates (RCA) limits their application as a secondary material in highways. Adding Reclaimed Asphalt (RA) in different percentages can reduce water absorption and improve the properties of the material for use in highway construction. The presence of RA beside RCA also plays another beneficial role in a subbase that is to enhance the drainage ability of the layer. A subbase which drains well and has low water absorption reduces the possibility of failure thereby increasing the durability of the pavement. This paper presents a laboratory investigation on the water absorbability of different mixes of unbound subbase made from RCA and RA. Using pyknometer and wire basket methods, the water absorption for each mix has been measured for different nominal sizes of aggregates in the mix. The relationship between specific gravities, grading and water absorption and its comparison for mixtures indicated the changes in behavior of aggregates and future performance of layers. The results indicate that the presence of RA in the mixes can reduce the water absorption of RCA by 67%.

KEY WORDS: Water absorption, Recycled concrete, Reclaimed Asphalt