



A Review Of Using Cement Concrete With Shredded Rubber

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Abstract:

The construction industry is always increases its uses and applications. Therefore, it is required to find alternative materials to reduce the cost of concrete. On the other hand, Non-biodegradable waste i.e. water bottles, cool drink bottles and disposable glasses, shredded or crumbed rubber etc., is creating a lot of problems in the environment and its disposal becoming a great difficulty. The objective of this paper is to investigate the use of rubber pieces as coarse aggregate in the concrete.



Keywords: Rubberized concrete, Waste tyres, Shredded tyres.

Introduction

The production of tyres has increased proportionally to the production of automobiles, in Turkey. In the year 2000, total sales of tyres was around 126,000 tons of which 86,000 tons were sold directly to vehicle owners; hence, the assumption that approximately 90,000 tons of rubber tyres are replaced annually. In addition to locally manufactured tyres, imported tyres are also sold in the domestic market. Thus, based on these figures, it is estimated that the total volume of waste tyres needing disposal is approximately 120,000 tons annually.

Scrap tire chips and their granular counterpart, crumb rubber, can be successfully used in a number of civil engineering applications. Tire chips consist of tire pieces that are roughly shredded into 2.5 to 30 cm lengths. They often contain fabric and steel belts that are exposed at the cut edge of the tire chip. Tire chips have been researched extensively as lightweight fill for embankments and retaining walls. Crumb rubber is a finely ground tire rubber from which the fabric and steel belts have been removed. It has a granular texture and ranges in size from very fine powder to sand-sized particles. Crumb rubber has been successfully used as an alternative aggregate source in both asphalt concrete and PCC.

Table: Typical materials used in manufacturing tire