

MECHANICAL AND DURABILITY PROPERTIES OF CONCRETE MADE WITH PET BOTTLES WASTE AS FINE AGGREGATE

M. Purushothaman¹, R. P. Surjith Singh Raja² & R. S. Ravichandran³

¹Associate Professor, Department of Civil and Structural Engineering, Annamalai University, Tamil Nadu, India

²Research Scholar, Department of Civil and Structural Engineering, Annamalai University, Tamil Nadu, India

³Assistant Professor, Department of Civil and Structural Engineering, Annamalai University, Tamil Nadu, India

ABSTRACT

A substantial growth in the consumption of plastic is observed all over the world in recent years that has led to dumping of huge quantities of plastic related wastes. This is an environmental issue as waste plastic bottles are difficult to biodegrade and involves processes either to recycle or reuse. Recycling of plastic waste to produce construction material like concrete appears as one of the best solutions for the disposal of plastic waste. This project deals with the possibility of using the PET bottles waste as the partial replacement of fine aggregate in concrete with 5%, 10%, 15%, 20% and 25% in the volume of river sand. Mechanical and durability properties were studied with PWAC (Plastic waste aggregate concrete) and compared with the control concrete. An attempt is made to find the optimum percentage of replacement of conventional aggregate by plastic waste aggregate for making the concrete. The main objective of this study is to reduce the wastage of plastic and to improve the eco-friendly environment.

KEYWORDS: *Compressive Strength, Durability, Environment, PET Bottle, Plastic Waste*

Article History

Received: 23 Oct 2019 | Revised: 30 Oct 2019 | Accepted: 07 Nov 2019
