A Novel Application of Flex Waste for Improving the Mechanical Properties of Concrete

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1 Introduction

Construction industry is an important sector which is responsible for the development of a nation. Cement is an essential part of construction industry. The production of cement is less as compared to the demand of cement in the developing nations like India. The production of cement is responsible for emission of huge amount of carbon dioxide (CO_2) which is a serious threat to the environment [1]. It is important to reduce the use of cement in construction industry to achieve the goal of sustainable development [2]. The demand of green concrete is increasing all over the world [3].

Solid waste management is another challenge which is faced by the different industries in current scenario. Due to the lack of space, it has become difficult to dispose the solid waste on land [4]. Reuse of the solid waste is a factor which supports the concept of sustainable development. Flex is used to make the hoardings and advertising boards. Flex wastes are the wastes that are generated from the industry of flex boards. The flex waste is composed of plastic majorly which can be shredded in the desired shape easily. Figure 1 shows the flex waste obtained from the industry.

The replacement of waste material with the components of concrete is a very widely used concept in the construction industry [5–7]. It not only decreases the cost of construction but reduces the problem of disposal of waste also. The industrial wastes like fly ash, ground granulated blast furnace slag (GGBFS), glass fiber,

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S. Biswas et al. (eds.), *Advances in Sustainable Construction Materials*, Lecture Notes in Civil Engineering 124, https://doi.org/10.1007/978-981-33-4590-4_46