

EFFECTIVE UTILIZATION OF INDUSTRIAL BY- PRODUCTS IN CONSTRUCTION INDUSTRY

PARVATHY A NAIR¹ & APARNA ASHOK²

¹post Graduate Scholar, Department of Civil Engineering, Indira Gandhi Institute of Engineering &
Technology, Nellikuzhi, Kerala, India

²Assistant Professor, Department of Civil Engineering, Indira Gandhi Institute of Engineering &
Technology, Nellikuzhi, Kerala India

ABSTRACT

Now a days large number of studies are going on to improve the performance of concrete with the help of innovative chemical admixtures and supplementary cementitious materials. These materials used are majority by-products or industrial waste from other processes. This paper presents results of experimental investigations on effect of addition of industrial by products as partial replacement of cement on the mechanical properties of concrete. In this research the Ordinary Portland Cement (OPC) has been replaced by industrial waste/by products (namely fly ash, micro silica, metakaolin) accordingly in the range of 0%, 5%, 10%, 15% 20%, & 25% by weight. Concrete mixtures were prepared, tested and compared in terms of compressive strength to the conventional concrete. Experimental results showed that addition of supplementary cementitious materials increased strength of concrete up to certain percentages and then decreased. Use of metakaolin imparted highest strength compared to other two materials. This experimental study also compares the strength by adding replacement materials separately in varying proportions and also in combination to obtain three types of triple blend mix. Compressive strength obtained for the triple blend mixes are also compared.

KEYWORDS: Compressive Strength, Flexural Strength, Split Tensile Strength, Fly Ash, Micro silica, Metakaloin