study On The Properties Of Concrete Using Large Amounts Of Fly Ash And Clinker Fine Aggregate

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Japan is expected to rely on coal-fired power generation for a while. Therefore, coal ash (fly ash) will continue to be generated as an industrial by-product.

In Japan, most fly ash is used as a raw material for cement, and the percentage of fly ash used as an admixture for concrete is low. Therefore, it is desired fly ash to be used effectively in Japan.

If fly ash could be used in large quantities as an admixture for concrete, it would reduce the amount of cement produced, which, emits large amounts of carbon dioxide.

This study investigated the improvement of the compressive strength of concrete mixed with fly ash more than 30％ in order to use more fly ash in concrete.

In this study, fly ash was replace 30％ to 50％ of cement, and clinker for ordinary Portland cement was used as fine aggregate in the study.

As a result, it was found that long-term and short-term compressive strength was improved by using clinker aggregate.

In addition, Freeze-thaw resistance and neutralization tests were carried out to investigate durability.

As a consequence, the use of clinker for ordinary Portland cement improved freeze-thaw resistance and no neutralization occurred in the 91-day-old specimens.