

ABSTRACT

The disposal of Pond Ash generated from power plants have been a major environmental concern over a period of last few decades. This project aims at investigating the improvement in various properties of pond ash when reinforced with randomly distributed polypropylene fibers and then also checking the feasibility of using this material in road construction. The use of reinforced pond ashes in road construction will lead to eco-friendly and profitable utilization of pond ash, with improved properties, which otherwise is a waste product.

A sample of pond ash was obtained from Rajghat Power Station, Delhi. A number of experiments were carried out to find out particle distribution, specific gravity, compaction behavior and suitability to use in road construction. Fiber content was also varied (0.5%, 1.0%, 1.5%, 2% and 2.5%) during the process. The results have been encouraging and it was found that compaction properties improved significantly with increase in fiber content in pond ash. The results of CBR tests conducted show that CBR value increased as fiber content was increased and reveal that the material can be used potentially as a sub-grade material.

The cost analysis carried out with pond ash with various fiber contents showed significant savings when reinforced pond ash was used against Delhi silt. The savings were more when reinforced pond ash was used than when unreinforced pond ash was used. The net savings increased by about 26% when unreinforced pond ash was used and it increased by about 27% with reinforced pond ashes. This was due to reduction in pavement thickness as CBR value increased with increase in fiber content.