

## **Influence of Plastic Waste Reinforcement on Compaction and Consolidation Behavior of Silty Soil**

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**Abstract :** In recent decades, the amount of solid waste production has been rising. In the meantime, plastic waste is one of the major parts of urban solid waste, so, recycling plastic waste from water bottles has become a serious challenge in the whole world. The experimental program includes the study of the effect of waste plastic fibers on maximum dry density (MDD), optimum moisture content (OMC) with different sizes and contents. Also, one dimensional consolidation tests were carried out to evaluate the benefit of utilizing randomly distributed waste plastics fiber to improve the engineering behavior of a tested soils. Silty soil specimens were prepared and tested at five different percentages of plastic waste content (i.e. 0.25%, 0.50%, 0.75%, 1% and 1.25% by weight of the parent soil). The size of plastic chips used, are 4 mm, 8 mm and 12 mm long and 4 mm in width. The results show that with the addition of waste plastic fibers, the MDD and OMC and also the compressibility of soil decrease significantly.

**Keywords :** silty soil, waste plastic, compaction, consolidation, reinforcement

**Conference Title :** ICGMS 2019 : International Conference on Geotechnical Monitoring and Structures

**Conference Location :** Tokyo, Japan

**Conference Dates :** May 27-28, 2019