

## **REUSING DISPOSABLE LOW-DENSITY POLYETHYLENE WASTE PLASTICS FOR FLEXIBLE PAVER TILE CONSTRUCTION FOR OUTDOOR APPLICATION**

### **Highlight of the study**

- ✓ Reusing waste plastic in production of paver tiles is a productive way of disposal of waste plastic.
- ✓ LDPE waste plastics and sand are used for the production of paver tiles.
- ✓ The sand in the tile acts as a reinforcement and hardening agent while the LDPE waste plastics serves as a bonding agent.
- ✓ Response Surface Methodology has been used to validate the approach of the study
- ✓ Box-Behnken Method is proposed for Experimental Design
- ✓ Design- Expert software operators have been used to statistical and mathematical analysis.
- ✓ Box-Behnken operator has been used into Design-Expert software to obtain optimal points of independent factors.
- ✓ The fundamental property of the proposed product (paver tiles) is investigated and analyzed
- ✓ The result of the study obtained based on the existing approach has been discussed and presented in form of figures, tables and graphical models.
- ✓ Different standards and case related methods have been used to discuss the results based on the objective of the study.
- ✓ The result showed that the optimum point was found at LDPE plastic waste of 25%, pressing time of 5min and pressing pressure of 3MPa.
- ✓ Resulting in a maximum flexural strength of 3.689MPa and compressive strength of 4.141MPa and the overall average water absorption capacity of the paver was 0.322%.
- ✓ The maximum value obtained in both flexural and compressive strength tests which satisfy the minimum expected standard set.
- ✓ Reusing of LDPE plastic waste with sand in the manufacture of paving tiles is possible.