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Waste Plastic Brick Suitability and Utilization Research

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Editorial

The global construction sector is gradually expanding, and it is utilising natural resource raw resources for construction materials. The traditional method of creating clay bricks without regard for natural resources resulted in natural resource scarcity. Plastic garbage has become a major global environmental concern in recent years. Using High-Density Polyethylene (HDPE) plastic waste Brick as a construction material has the advantage of reducing plastic's environmental impact while also conserving natural resources such as clay soil. Before creating waste plastic Brick, High-Density Polyethylene (HDPE) plastic trash was gathered from various locations where it was thrown, and it was cleaned and the size was decreased as it was acceptable for plastic waste brick [1].

Before making waste plastic Brick, high-density polyethylene (HDPE) plastic trash was collected from various locations where it was thrown. As it was suited for plastic waste Brick, High-Density Polyethylene (HDPE) is cleaned and the size is minimised. Following that, plastic waste bricks were created for various tests. For the compressive strength test, five samples of plastic waste bricks were made. The average compressive strength of plastic waste bricks was 24 MPa, which meets Ethiopian and ASTM standards for Class A and SW grades, respectively, and ten waste plastic bricks were used for dimensional tolerance testing [2]. The dimensions of the waste plastic bricks were tested for dimensional tolerance and found to be identical to the ASTM standard dimensions.

Because of the large amounts of plastic garbage produced, the environment is becoming increasingly threatened, posing a major threat to both the environment and its inhabitants. The maritime ecosystem is a significant victim of this threat. Plastic wastes generated on land end up in aquatic bodies, where they cause problems including floods and poisoning of creatures in the marine ecology. Plastics in the marine environment that are absorbed by fish are also harmful to human health if these fish are eaten. As a result, cancer is a serious disease that develops [3]. This study investigates several techniques of recycling plastic wastes into new products in order to identify an effective solution to manage these wastes and increase the sustainability of our environment.

The grave danger posed by the abundance of plastic garbage in our oceans is also discussed. The limitations of using plastic trash for construction uses are examined, as well as the future potential. It is stated that the utilisation of plastic trash in construction applications will considerably increase environmental sustainability while also serving as a reliable source of construction materials [4]. Furthermore, it has been discovered that using recycled plastic wastes as a component in cementitious composites is the most advantageous because it can be utilised to replace all solid components of the composite. Finally, areas for additional research are discussed.

Issues with plastic waste that affect the environment

Plastics are widely utilised due to their advantageous features, which include lightweight, high impact resistance, the ability to mould it into various shapes, and bacteria resistance. However, because it is widely used, a significant amount of trash is generated as a result. One-time (short-term) applications account for a bigger percentage of plastics manufactured, whereas long-term applications such as pipelines account for around one-fourth. This short-term use of plastics has resulted in an increase in the amount of plastic garbage produced each year and inappropriately disposed of in the environment [5].

Because of its high energy consumption and carbon emissions during manufacture, plastic poses a sustainability challenge, but the disposal of its waste poses a significant environmental risk. While all of the tested polymers had high Sb levels, certain materials, such as those used in microwave ovens, had Sb levels over a threshold level (800 mg/kg). However, their research indicated that Sb concentration is mostly dependent on the kind of polymer used in plastic production. Plastic is less recycled than other materials used in vast quantities, such as paper, ceramics, glass, and metal. The entire process of recycling plastic is regarded as complex due to the multiple processes required in it - production, distribution, usage, disposal, and sorting.

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