Utilization of plastic waste production of hollow blocks and bricks

Business, Industries

The objective of this IP is to prove that plastics can be recycled into reusable hollow blocks/bricks and help theenvironmentby lessening plastic waste. In this experiment, plastics were cut into small pieces to use them in bricks/hollow blocks.

The objective of this project is to help preventwater pollutionthat causes flood, by collecting and using plastic wrappers in making hollow blocks and bricks. Plastic materials are commonly used in or daily lives. Plastic bags, wrappers, and other related products were introduced to substitute paper products. But now different problem arises because of the use of these materials.

Land and waterpollutionare most common. Those plastic materials are improperly dumbed cause flood because plastic waste takes years to decompose. So one way to lessen those problems is to utilize those plastic waste products, instead of dumping them, and make them reusable. In this experiment we will demonstrate how plastic waste can be used in making hollow blocks and bricks.

The product can only be used as decorative block and is not intended for building houses and the likes. Every day, we throw away large quantities of polymer in the form of plastic bottles, cartons, and yogurt pots. Experts estimate that 25 percent of polymer waste is unsuitable for recycling for three main reasons; it is economically unprofitable; and it is too dirty.

Now, researchers from the Latvian Technological Center and the Institute of Polymer Mechanics at the University of Latvia have come up with a solution. Working with Hormigones Uniland, a Spanish cement company, the

researchers have succeeded in turning thermoplastic polymer waste into a binding substance that could be mixed with other materials, like sand, to generate cement-free polymer concrete goods.

“ The polymer concrete bricks look like ordinary bricks made from cement,” says Dr. Juris Balodis, project manager at the Latvian Technological Centre. However, he points out that the polymer concrete absorbs less water” so it is very good for resisting temperature variations like freezing.” Both the European market and consumers are expected to benefit from this material, which can work well in a wide range of products, including street furniture and street curbs. Dr. Balodis and his team are now researching how to accelerate the production of bricks. The current rate is three bricks per minute, but the team wants to increase production to between 30 and 60 bricks per minute.

Methodology

- Materials
- Plastic waste wrappers
- Cement
- Red cement
- Wafer
- PVC pipes
- Molder
- Basin
- Measuring cup
- Strainer

Procedure

The waste plastic materials were collected and cut into tiny pieces. A basin was prepared for the cement and plastic wrappers. Thirteen cups cement and 13 cups of plastic wrappers were poured into the basin and mixed well. A molder was prepared for the hollow blocks. Eleven cups of plastic wrappers and 11 cups of cement were mixed thoroughly.

The mixture was then poured into the molder and allowed to dry for two days to ensure that it is firm before it is removed from the molder. For the bricks, two cups of cement, one cup of plastic wrappers, and one cup of red cement were mixed thoroughly. The mixture was then poured into the molder and allowed to dry for at least two days.

Results and Discussion

The following are the observations made on the resulting products:

Ordinary Hollow Blocks

- Long
- Somewhat Brittle
- Thick
- Grayish White

Ordinary Bricks

- Hard
- Thick
- Wide
- Easily Breaks
- Brown

Hollow Blocks with Plastic

- Smaller in Size
- More Durable
- Thicker
- Dirty White

Bricks with Plastic

- Harder
- Thinner
- Wider
- Durable
- Light Red

Conclusion

We, therefore, conclude that plastic waste can be used in the production of hollow blocks and bricks.

Suggestion and Recommendations

Researchers recommend collecting plastic wrappers as well as other plastic waste and use or turn them into alternative products to and help the environment. This project can prove useful in homes. Those plastic wastes can be reused in a more profitable way. Lesser waste means lesser pollution in the environment.