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COVID WASTE BRICKS

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Abstract

Since the development of commercially viable polyethylene in the 1950's, plastics have become an increasingly important packaging option worldwide. It's high strength, light weight, flexibility and low toxicity renders it an extraordinary material for packaging and for production of durable and non-durable goods. As a result, this material is used universally for a wide range of applications. Unfortunately, these materials are increasingly under environmental scrutiny. One of today's challenges is to capture value from post use materials, transitioning from the current linear economy to an efficient, sustainable circular approach by redirecting these valuable and irreplaceable materials from waste streams to recyclable objects and feedstock. In this seminar, we will explore the innovations that have made synthetic polymers the material of choice for so many applications, the drivers behind the growth of this industry and the collaborative efforts that are underway to responsibly repurpose post use plastics.

1. INTRODUCTION

Plastic is a non-bio-degradable substance which takes thousands of years to decompose that creates land as well as water pollution to the environment. The quantity of plastic waste in Municipal Solid Waste (MSW) is expanding rapidly. It is estimated that the rate of usage is double for every 10 years. The Plastic usage is large in consumption and one of the largest plastic wastes is polyethylene (PE). The utilization of earth-based clay material resulted in resource depletion and environmental degradation. As amount of clay required for brick is huge, in this project these waste plastics are effectively utilized in order to reduce the land space required to dump these wastes. This creates the prevention from various harmful diseases. Polyethylene (PE) bags are cleaned and added with fine aggregate at various ratios to obtain high strength

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bricks that possess thermal and sound insulation properties. This is one of the best ways to avoid the accumulation of plastic waste. It also helps to conserve energy, reduce the overall cost of construction and hence in this project, an attempt made to manufacture the plastic sand bricks by utilizing the waste plastics.Building materials like bricks, concrete block, tiles, etc. are popularly used in construction. However, these materials are expensive and hence common people find it difficult to easily afford them. Moreover, these building materials require certain specific compositions to obtain desired properties. Plastic is one of the recent engineering materials which have appeared in the market all over the world. It is a material consisting of a wide range of synthetic or semi-synthetic organic compounds that are malleable and can be molded into solid objects.By definition, plastics can be made to different shapes when they are heated. It exists in the different forms such as cups, furniture, basins, plastic bags, food and drinking containers and they become waste material. Accumulation of such wastes can result into hazardous effects to both human and plant life. Therefore, need for proper disposal, and if possible, use of these wastes in their recycled forms arises.Nowadays, human apply all of its potentiality to consume more. The result of this high consumption is nothing unless reducing the initial resources and increasing the landfill. In recent times, human from the one hand is always seeking broader sources with lower price and from the other hand is following the way to get rid of the wastes. The waste today can be produced wherever humans footprints be existed, and remind him that they have not chosen the appropriate method for exploitation of the nature. This paper introduces the development and low-cost housing in India Plastic have become an essential part of our day to day life since their introduction over hundred years ago.

2. RELATED WORK

Existing Solutions

1. Using nanotechnology for smart packaging.
2. Enetic engineering of natural products.
3. Making lightweight aluminum and steel.
4. Chemical recycling.
5. Using bio-based biodegradable polymers.
6. Using nano-cellulose for biodegradation.
7. Using catalysis to biodegrade PET plastic.
8. Recyclable plastic packaging.

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Problem Definition

Advantages

1. Converting waste plastic into bricks for construction purpose.
2. Water pollution and land pollution is reduced to a good extend.
3. Bricks made from plastic waste are more strong than normal bricks.

Disadvantages

The only disadvantage is air pollution while melting the plastic.

Gaps In Existing Solutions

The gaps in existing solutions are there is no conversion of waste plastic it is only recycling though it's helpful its again using the old plastic. But in our project we are making bricks out of waste plastic where there will be no pollution caused.

Proposed Solutions

In place of clay bricks the bricks made of plastic waste can be used, there are some benefits of this

1.The soil pollution and water pollution decreases.

2.plastic waste which are thrown away are recycled and re-used.

The plastic waste like bottles, cans, sanitizers bottles and other items which are made with plastic. In the current situation humans are producing huge amount of plastic which causing much more pollution to our mother earth.Plastic is a non-bio-degradable substance which takes thousands of years to decompose that creates land as well as water pollution to the environment. The quantity of plastic waste in Municipal solid waste (MSW) is expanding rapidly. It is estimated that the rate of usage is double for every 10 years. The plastic usage is large in consumption and one of the largest plastic wastes is polyethylene(PE).The Utilization of earth based clay material resulted in resource depletion and environmental J huge, in this project these waste plastics are effectively utilized in order to reduce the land space required to dump these wastes .This creates the prevention from various harmful diseases .Polyethylene(PE) bags are cleaned and added with fine aggregate at various ratios to obtain high strength bricks that possess thermal and sound insulation properties, This is one of the best ways to avoid the accumulation of plastic waste It also helps to conserve energy , reduce the overall cost.

Need Statement

Due to the rapid increase of cases in India different kinds of biomedical waste like PPE kits, face masks and shields, gloves, sanitary bottles etc usage also increased rapidly. In the month of April and may in our country manufacturing of biomedical waste increased 50% more, In the month

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of April 139 tons of biomedical waste are produced per day. In the month of May it is increased to 203 tons and rapidly increased the wastage of biomedical waste.At last, we have come up with a solution that probably saves the mother earth form the biomedical waste into bricks which is of User eco-friendly, Low cost.

3. IMPLEMENTATION

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4. EXPERIMENTAL RESULTS

First, we collect all the waste plastic and we make that plastic into small parts and we starting melting it at high temperature and once the total plastic is melted then we mix sand in it and we pour that molten plastic in which is sand is added into a rectangular box for shape and then we let it dry for 1 hour and after drying out we have to take out the brick out of the rectangular boxes. Now the bricks from plastic waste are ready for the construction purpose.

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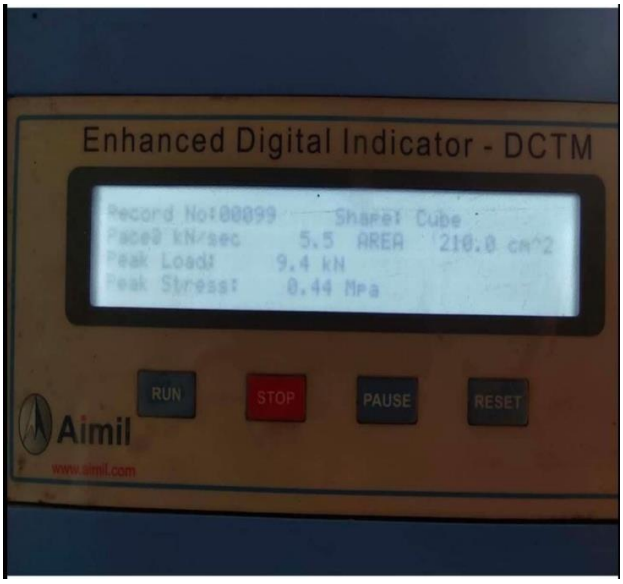
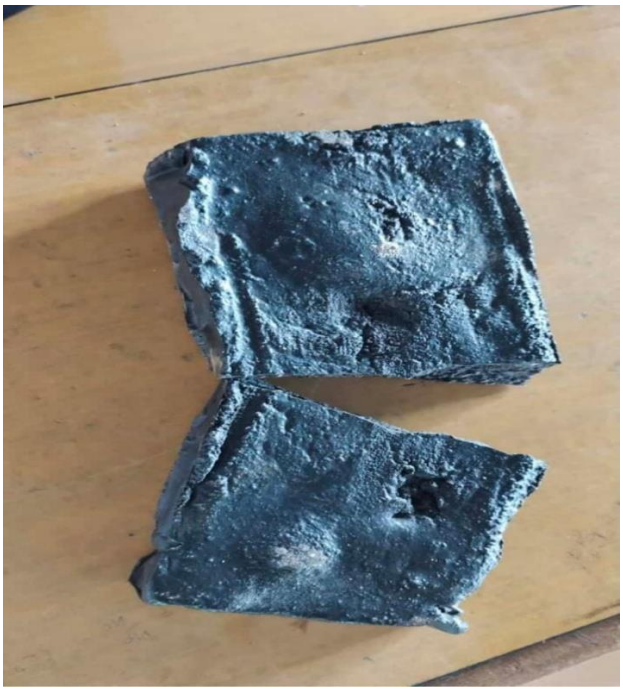
Compressing testing machine.

Managing the plastic bio-medical wastes and reusing them for a food course without harming the Mother Earth is a big task for us now a days.By taking some precautions we can use most of the plastic BMWs. It is more efficient and lighter than clay bricks. The bricks are designed in a way that will not harm the users, very strong compared to wood and clay, eco-friendly, low cost. Which is probably the best thing we can do with used plastic Bio-medical wastes.



Results of the strength test.



Broken brick after taking compressibility strength test.

5. CONCLUSION

At last, we have come up with a solution that bricks from plastic waste which probably saves the Mother Earth from the plastic which is of

1.User-friendly.

2.Eco-friendly.

3.Low cost.

4.Stronger than other ones.

5.Analysis of the brick:

6.Weight of plastic required to make one brick: 2-3 kgs.

7.Amount of sand required to make one brick: 800 gm of sand.

8.Final weight of the brick: 2.6 kgs.

9.Weight of normal brick: 3.6 kgs.

10.Strength of the brick: 9 newtons.

6. REFERENCE

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