

Different types of plastic tiles use in Real estate

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ABSTRACT

The general objective of this research work was to contribute to the environment decontamination. Its specific objective to develops sustainable roofing tiles from ecological point of view. In this way this technology contribute in the decontamination of the environment since it uses waste material that are burned in municipal land without any use, or accumulated and burned in landfill, causing pollution plastic and rubber are non-biodegradable material so nature cannot absorb them as other waste.

The typical tiles made from soil or clay will be limited because it destroyed the farmland on the other land the old and tire and plastic increases year and year which brings serious environmental problem so the plastic tiles made from waste plastic will lot to decrease above environmental pressure. The measurement of physical and mechanical properties show that plastic waste tiles whose proportion in plastic 40% give better result than micro-concrete tiles.

Keywords:

Non -biodegradable, Sustainable, Decontainmenation.

INTRODUCTION :

As the modern life is unthinkable without plastic but there is catch. Today life style we see plastic everywhere .In day to day life the use of plastic in many ways such as plastics bags, toys, tables , tv box, water bottles, so above mention plastic solid in nature. Plastic is an unavoidable use of common man if at a time plastic use and people discard it and thorough out in open atmosphere. Many researchers has conclude that disposal of plastic upto 300 year it is very dangerous to human life as well as earth. Plastic consists unwanted substances and chemical. If we burn plastic then it produces poisonous gases, smell and hazardous material. So we want to help some percent for environment by using plastic material in construction. In our study we mainly concentrate on using this wastage of plastic as row material for the production of tiles. Plastic are non- biodegradable ,synthetic polymers derived primarily from petro-fossil feed stock and made of long chain hydrocarbon with additive and can be moulded into finished product.(excluding compostable plastic or polymer confirming IS/ISO 17088:2008) (Reference -textbook on plastic material by Prof. J.A. Brydson). We are collecting this solid plastic and crush this material to convert it in small and small particles.. Also it process different colour turn plastic material into appropriate colour. This plastic is mix into binding agent and put this homogenous material in to mould it take some time to set and get good tiles. To keep the environment clean and healthy, the plastic waste should be removed as early as possible. The tiles which are produced by this wastage of plastic have better performance and strength as compared to ordinary tiles. A tile is a manufactured piece of hard-wearing material such as ceramic, stone, metal, or even glass. Tiles are generally used for covering roofs, floors, and walls, or other objects such as tabletops.Roof tiles are designed mainly to keep out rain, and are traditionally made from locally available materials such as clay or slate. Modern materials

such as concrete and plastic are also used and some clay tiles have a waterproof glaze. Making plastic in to tiles the time required for processing is much less than what cement ones take. The weight is also less, making them easy to handle. The plastic tile is recyclable. For changing the shape of the tile, just heat it and transform it into the desired shape. A panelized roofing system is an ideal use for this recycled composite technology because (1) panels can be easily molded to resemble traditional roofing materials, such as cedar shakes, Spanish tiles, or slate, and (2) the aesthetic quality of the panels provides an opportunity to showcase recycled material in a product that looks expensive but costs much less than the traditional product it replaces. In 1960's, plastic drainage tile was developed. It came in long coils that were easily connected together, and made laying tile a much easier job, and also did not have the sinkhole problems of clay tile. Plastic floor covering materials can be classified into floor tiles, which may be either composition tiles or homogeneous tiles, and long-sized sheets, which may be either vinyl sheets without a foam layer and vinyl sheets with a foam layer. Growing demand for plastic goods and associated production machinery – not only in Kenya but also throughout Eastern Africa has been spurred in recent years by economic reform and sustained economic development.

LITERATURE REVIEW

In 1998, Athos Poldidor “METHOD OF MAKING COMPOSITE TILES CONTAINING WASTE PLASTIC” The present invention concerns a manufacturing process and a related product constituted of a tile in plastic material. The process comprises the following operative stages crushing a thermoplastic material of recovery.

Athanas Konin “USE OF PLASTIC WASTES BINDING MATERIAL IN THE MANUFACTURE OF TILES: CASE OF WASTES WITH A BASIC OF POLYPROPYLENE” According to Konin the plastic waste tiles have low porosity hence it makes tiles impervious in opposition to micro-concrete tiles. The proportion of 40% of plastic binder gives best result hence gauging is to be used.

Yong Liu “MECHANICAL PERFORMANCE OF ROOF TILES MADE TIRE POWDER AND WASTE PLASTICS” According to the principle that the impact strength is the most important mechanical performance and the modulus of elasticity and elongation at break are the secondly important; a sample that contains equal rubber powder and plastic was taken as the best.

Plastic waste increases the volume of voids in concrete which on other hand reduce the compactness of concrete simultaneously speed of sound in concrete is also decreased. Strength reduction in concrete mix was prime concern; however they recommend 10 to 20% replacement of fine aggregate with plastic aggregate.

Collection of Material:

- (1) Crushed Plastic
- (2) M E K P
- (3) Epoxy Resin

Preparation of tiles consists of a thermosetting casting method. In this method, a plastic material are crushed by using crushing machinery and then this material binds together with binding material like epoxy resin, epoxy hardener (glue) with a small amount of accelerator and hardener MEKP. This mixture should be homogenous and appropriate proportion. We are using thermosetting plastic in our project because it doesn't require any heat and pressure treatment.

Proportion:

- 1:1:6 (Hardner: Epoxy Resin :Plastic material)
- 2:2:6 (Hardner: Epoxy Resin :Plastic material)

- Result:

Flexural Test:

Plastic Tiles: Size:300x300x15MM

After completion of above project is noted that this plastic tiles presenting un economical but in future research on that issue will be possibility make that this tiles economical. We will change the percentage of plastic waste also there are possibility to change the binding material like resin-melamine resin polyester etc this are the chemical which will be economical. If we use fire proof reagent, modern method, colour reagent for making this tiles then it will more glossiness and efficient. If we increase our production in large quantity there will be possibility of chemical present in it will be at low cost. The density of the LDPE tile was observed to be 843 kg/mm³. For conventional tiles, it is near to 2400. So, the tiles can be used in various applications where we require weight reduction. In the LDPE made tile, the total weight reduction was observed to be 57.7322% as compared to the conventional bathroom tile having the same dimension. The compressive strength of 17.26 MPa was observed. According to IS 15622:2006, a minimum of 1500 N breaking force is required to pass the test. The manufactured LDPE component showed 2175.6 N breaking force. So, these tiles can be used in places where there is no high weight bearing requirement. Burning rate was observed to be 52mm/min which was lesser than the standard 100mm/min required to pass the test. The coefficient of friction was experimentally calculated to be 0.5 for test specimen which was equivalent to the commercially available bathroom tile of 0.512 which opens up new avenues for further research and improvement of the coefficient of friction to make antiskid tiles. This makes tiles we manufactured using LDPE usable for normal day to day applications avoiding any slippage

SUMMARY:

A tile is a thin object usually square or rectangular in shape. Tile is a manufactured piece of hard-wearing material such as ceramic, stone, metal, baked clay, or even glass, generally used for covering roofs, floors, walls, or other objects such as tabletops. Alternatively, tile can sometimes refer to similar units made from lightweight materials such as perlite, wood, and mineral wool, typically used for wall and ceiling applications. In another sense, a tile is a construction tile or similar object, such as rectangular counters used in playing games (see tile-based game). The word is derived from the French word *tuile*, which is, in turn, from the Latin word *tegula*, meaning a roof tile composed of fired clay.

Tiles are often used to form wall and floor coverings, and can range from simple square tiles to complex or mosaics. Tiles are most often made of ceramic, typically glazed for internal uses and unglazed for roofing, but other materials are also commonly used, such as glass, cork, concrete and other composite materials, and stone. Tiling stone is typically marble, onyx, granite or slate. Thinner tiles can be used on walls than on floors, which require more durable surfaces that will resist impacts.

CONCLUSION:

As above project studied that the plastic is harmful for environment and very much amount plastic waste discard in surrounding in daily routing. So, we try to minimize as well as utilization of this plastic waste in civil construction field by production of plastic tiles with waste plastic material.

We trying to best to do efficient tiles form these materials but presently this tough task to us because of uneconomical production of this tiles it is possible to use another chemical for binding material such as polyester or other which may be economical in future.

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Filed:- May 19,1970

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Filed:- April 21,1998

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Inventer:- Roberts Mar

Filed:- 1974 USA

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Inventer:- Gaggino Rosana

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