
USE OF BAGASSE ASH AS A BRICK MATERIAL: A REVIEW

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ABSTRACT

Clay bricks are one of the prominent construction materials. Due to the usage of Bricks in abundance in construction sector and manufacturing of quality clay bricks from fertile raw materials, admixtures etc., the world is in need of alternatives to prevent the depletion of clay from agricultural lands. The tannery sludge which is disposed as a landfilling material, is a potential substitute for brick making. In addition, bagasse ash with high silica content, which is a waste disposal from sugarcane industry wastes, might be incorporated with sludge in brick manufacturing. In this paper, an attempt has been made to review manufacture of Eco Brick made from tannery sludge and bagasse ash with clay. It has been proven to be an effective alternative material in construction industry.

I. INTRODUCTION

Population state of affairs comes in the direction of India by using increasing industries. The fruitful efforts of industries result in expand India. As the industries will increase also the waste coming from them at the end of product will increase. At the stop of survey end result coming that the amount of the about 250 to 300 million heaps of industrial wastes are being produced each 12 months by way of chemical and agricultural manner in India. It is very essential to dispose those wastes competently without affecting health of man or women, surroundings, fertile land, resources of water our bodies; and many others. Sugar cane bagasse, the fibrous residue after crushing and juice extraction of sugar cane, is a main business waste product from the sugar enterprise.

Nowadays, it's far common place to reutilize sugar cane bagasse as a biomass fuel in boilers for vapor and strength technology in sugar factories. Depending at the incinerating situations, the ensuing sugarcane bagasse ash (SCBA) might also incorporate high levels of SiO_2 and Al_2O_3 , permitting its use as a supplementary cementious cloth (SCM) in mixed cement systems. Uses of Sugarcane bagasse ash waste in brick can keep the sugarcane industry disposal charges and produce a 'greener' brick for creation.

II. LITERATURE REVIEW

S. Manoprakash, J Muthu Prasad & R. Naresh Raj (March 2019)

Have studied that the application of bio- fuel by-product sugarcane bagasse ash (SBA) as a principle raw material of manufacturing of bricks was studied. Utilization of industrial and agricultural waste product in the industry has been the focus of research for economic, environmental and technical reasons. SBA is a largest agricultural waste in the world. Therefore, our aim behind this research paper, effectively use of this agricultural waste (SBA, press mud) for manufacturing of bricks. In this paper, Bagasse ash has been chemically and physically characterized. SCBA-clay-lime combination bricks were designed and developed in different mix proportions. The properties of developed bricks were studied according to recommended standards. The result of the SCBA-C-L bricks were compared with physical-mechanical properties of commercially available burnt clay and fly ash bricks. It was observed that it the SCBA-C-L bricks were lighter in weight, energy efficient and meet the compressive strength requirement of IS-1077:1992. The bricks also served the purpose of solid waste management and innovative sustainable construction materials. The bricks can be used in local construction especially for non-load-bearing walls.

L. Vignesh Kumar & B. Jai Vignesh Issue year: 2017

His document partially replaces fly ash with pulp to reduce waste. Effective use of this waste is a challenge for scientists due to its impact on the environment. Pulp is often used as an essential oil for confectionery. The aim of this study is to create a commercial and environmentally friendly brick in order to have a balanced environment and avoid the waste problem. It is important that these wastes are disposed of safely without affecting human and environmental health. Therefore, reuse is highly desirable and bagasse has also been found to have high silica and pozzolanic properties. Therefore, it can be used instead of household appliances.

Mr. Sayal Shende, Mr. Beach Bansod & Mr. Shubham Lonare Issue year: 2023

The aim of the current project is to produce fly ash containing waste products, especially bagasse ash. With India's population increasing day by day, many companies and agriculture are generating a lot of waste that threatens health and the waste of this waste has become a major problem. From this we conclude that the incorporation of waste materials into the brickwork process will reduce the environmental impact, making buildings cheaper and more environmentally friendly. Process of recycling pulp ash as a raw material for clay bricks, replacing up to 20% by weight of natural clay. In this article, pulp was used as a good substitute for fly ash bricks. These bricks are tested for compression and absorption according to Indian Standards. The aim of this study is to produce an economical and environmentally friendly brick and eliminate the problem of ash disposal.

D. Kishore & S. Kotteswaran YEAR OF PUBLICATION: 2018

This paper deals with use of bagasse ash as material. Bagasse is waste formed by burning of sugarcane. Recycling of sugarcane bagasse ash waste for brick bodies, through replacement of natural clay by up 20wt%. In this paper, bagasse ash as an effective replacement in fly ash bricks with different proportions of 10% to 80% with replacement of fly ash. These bricks were tested in compression and water absorption test as per Indian standards. The aim of this research is to make economic and eco-friendly brick and disposal of ash will become less.

Mohammedh Muntazir, Shree Kndeshwara and Vinodh Kumar :2018

Use of bagasse ash (SBA) a by- product of biofuel, as brick raw material has been researched. It is also known that if energy production is not done correctly, it is harmful for environment and our health. The fibrous residue of sugar is called "pulp". After pressing and squeezing, is one of the largest agricultural products in the world. Although the pulp is used as a biomass fuel for boilers, the product obtained from the residue after burning are not useful and are often released into rivers, harming humans' health, the environment, fertile soil, water, etc effects. Under combustion conditions, it has a very high silica concentration and contains aluminium, iron, alkalis, and alkaline earth oxide in smaller amounts, using bagasse ash waste in brick making can save economy in terms of disposal cost and produce greener brick for construction. Therefore, we conclude that compressive strength of sugarcane bagasse brick is found to be above 60% strength increases, which implies this brick comes under second class brick. From the IS:1077-1992, it is concluded that this brick comes under second class brick.

III. CONCLUSION

1. To protect the clay resources and environment by using these bricks in structural building, the builder saves around 15 to 20% of structural steel and concrete as these bricks reduce the dead load on the building.
2. Sugarcane bagasse can be added in a higher percentage as compared to the other material used.
3. The percentage of water absorbed is 44% which indicates that this brick comes under first class and second-class brick and we can use less amount of water in cement mortar for construction of brick work.
4. Bagasse ash is a valuable pozzolanic material and it can potentially be used as a partial replacement for fly ash and make construction cheaper.
5. Environmental results of wastes and disposal issues of waste may be reduced through this research.
6. Bagasse ash bricks lessen the seismic weight of building.

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