

# Plastoash Block: A sustainable solution to Plastic Pollution

Pratibha Gautam, Darshan Salunke, Snehal Lokhandwala

Department of Environmental Science & Technology. Shroff S. R. Rotary Institute of Chemical Technology. Ankleshwar – 393135, INDIA

Email: gautampratibha.19@gmail.com, pratibha.gautam@sriect.in



## Introduction

### Need for Study



India generates 9.46 million tonnes of plastic waste annually. As per the environment ministry, nearly 40% of this waste remains uncollected. Most cities and towns are unable to efficiently implement plastic waste management rules. This waste piles up in landfills, chokes drains and rivers and flows into the sea where it is ingested by marine animals. It leaches into the soil and groundwater, contaminating the natural environment with poisonous dioxins. The consequences of mismanaged waste, including plastics, to human health have become a silent and toxic crisis, killing between 4,00,000 and 10,00,000 people each year in low- and middle-income countries.

### Abstract

Use of plastic based products in current time is inevitable and its application for various purposes has led to multifold increase in the generation of Plastic waste. Currently management of plastic waste has become a global environmental issue, catching attention of researchers worldwide. Researchers, all over the world are working to find out economically viable solution to deal with huge quantities of this plastic waste including different recycling options. Plastic is a substance which has a good insulating, compressing, elastic strength. Upon heating, its bonds are broken, this is the transitional phase when this plastic can again be molded into new forms. The research project describes about the process of recycling plastic waste into a very useful product, which can be used as an alternative of regular concrete paver blocks with better compressive strength and negligible water absorption. The major raw material of conventional Paver block is cement, which is replaced by plastic in this process, leading to significant reduction in GHG emission and

## Methodology, Results & Discussion

### First Step

- Plastic waste collection, Shredding (Size reduction) and thermal processing (Softening)

### Second Step

- Addition of fillers and rigorous mixing until the mixture is uniformed. (heating still continues)

### Third Step

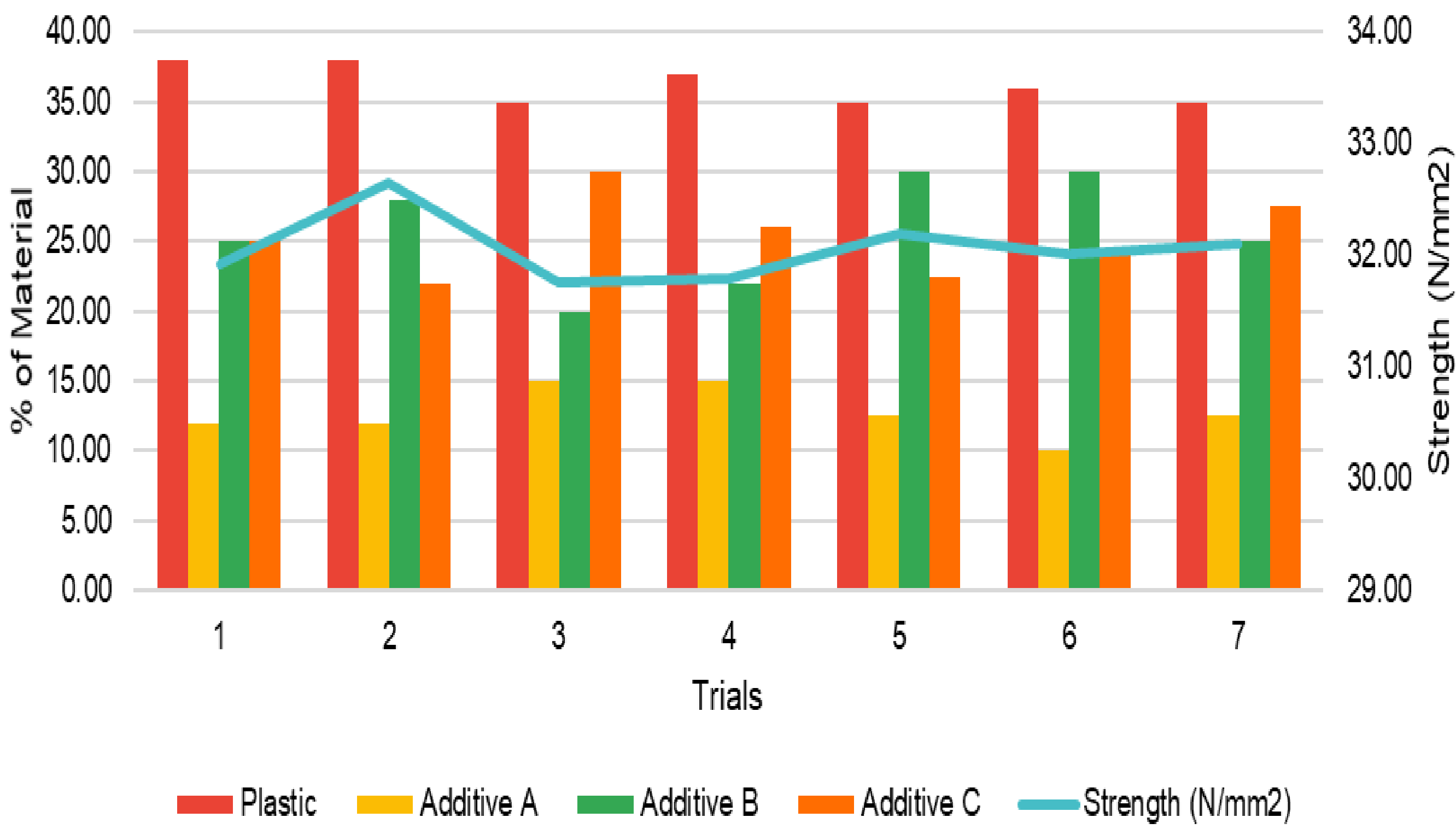
- Moulding and Compression

### Fourth Step

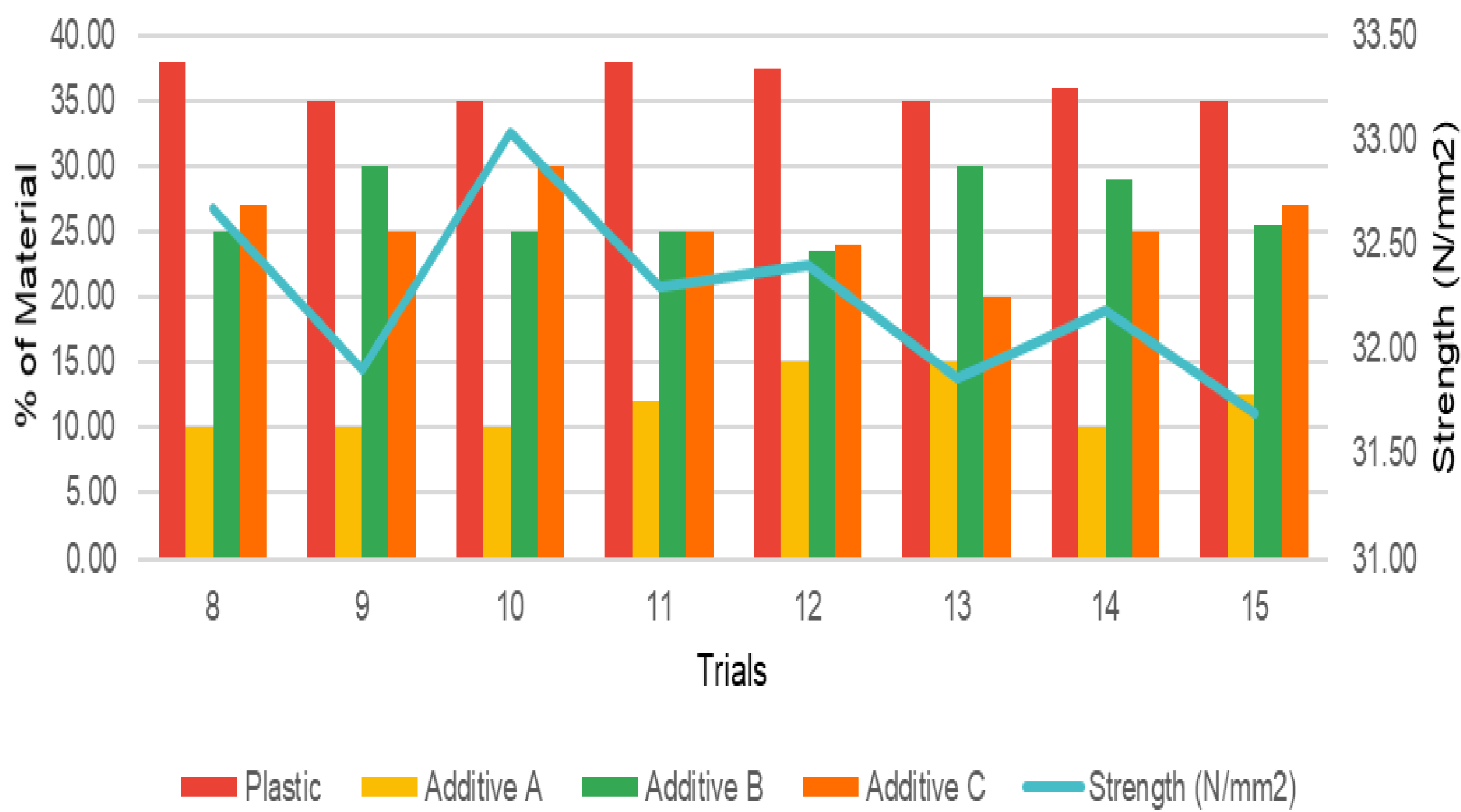
- Repeated experiment at different composition and operating conditions to achieve maximum strength.



### Details of Experiments



### Details of Experiments



## Conclusion

Almost all kind of Plastic waste can be recycled through this process and the note worthy advantages of this process are that it does not require washing for removal of dust/inert and the overall cost is 25-30% less comparison to conventional paver blocks. It also provides significant reduction in GHG emission.

The authors would like to express support of the SRICT and BEIL Infrastructure Ltd.

