

Packaging Waste Management

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INTRODUCTION

Just a few days back, there was a warning issued by UN delegate quoting “**NEARING CRITICAL POINT OF NO RETURN**” on climate change and the primary reason for this climate change is packaging waste management.

ABSTRACT

Part 1: Plastic waste:

- PE, PVC, PP, ABS plastic waste can be used to make lumber composite (Mixture of wood, plastic and binding agent) which is denser and stronger than wood and can replace it.

Part 2: Tubes, cores, boxes, labels waste:

- Labels waste can be added as one of the ingredients to make P-Block bricks (made up of waste paper sludge and chewing gum waste as binder).
- Waxed, wet and soiled cardboard can be composted at commercial composting operation.

Part 3: Wooden and metal waste:

- If wood can no longer be reused it can be dismantled for scrap wood, chipped composted, yard munch or as boiler fuel.
- Metal container can be broken and can be used as **scrap** in respective foundries for casting process.

TECHNOLOGICAL INNOVATIONS

- We replaced coarse aggregates with plastic granules in the concrete block to make use of waste plastic.
- Styrofoam (PS) waste granules can be used in foundry sand moulding in place of coal dust which uses just 500 kg of coal dust in place of 5.5 MT used earlier.

- HDPE,LDPE plastics are cleaned and is mixed with Sand in ratio **1:4** and red oxide (colouring agent) to form **Plastic sand brick** (compressive strength **5.12 N/mm²**) which is greater than Fly ash and Burnt Clay Brick.

RESULT AND FINDINGS

- The concrete block which we have made has a weight reduction of almost 30% which is a great plus point.
- The strength related results are as follows: (after 7 days)

Sr no.	Location	Rebound hammer	Compressive Strength	AVERAGE
1	Corner1	23	20 Mpa	24.2 Mpa
2	Corner2	24	22 Mpa	
3	Corner3	27	25 Mpa	
4	Corner4	23	20 Mpa	
5	Centre	33	34 Mpa	

Concrete used: M20 grade

- Thus, we can replace the normal block by light weight concrete.

IMPACTS

- The amount of plastic waste will be reduced to a reasonable amount which is very important in today's life.
- Plastic is used in such a way that it doesn't reach the ground level, so there is no problem regarding its decomposition.

KEYWORDS:

Light weight concrete, Lumber composite, Metals' Scrap, P-block Brick, Plastic sand Brick.