

## “WASTE PLASTIC USE IN ROAD”

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### ABSTRACT

. : The Waste plastic is generated every month very large amount. The Waste plastic is major problem . Waste plastic creates environment problems . It is decompose taking so large time .Than seeing this problem we decide to consume Waste plastic in the road construction. We are collecting the plastic waste and separate the hard plastic and thin plastic hard plastic is mix with the aggregate and thin plastic is use to partially replacement of bitumen it is large durable and it consist large strength . waste plastic are use poly ethylene , poly styrene poly propylene and hard plastic waste .waste thin plastic is cutting into small size mix with bitumen and hard plastic is mix with aggregate and hole material mix and make pavement for road construction.

The result of bitumen mix waste plastic pavement increase the strength and also increase the durability of the road. The titanium di-oxide use as a smoke absorption material . The innovative technology use for India hot climate .this is eco friendly. In this paper we will improve the road durability and strength.

**Key word : waste plastic ,bitumen , aggregate, strength ,durability etc.**

### INTRODUCTION

The plastic waste is major problem from the global warming the plastic is generated in every month in large amount .it is decomposer very large time we are collecting the plastic waste and separate the hard plastic and thin plastic hard plastic is mixed with the aggregate and thin plastic is use to partially replacement of bitumen it is large durable and it consist large strength . waste plastic are use poly ethylene , poly styrene poly propylene and hard plastic waste .waste thin plastic is cutting into small size mix with bitumen and hard plastic is mix with aggregate and hole material mix and make pavement for road construction.

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#### **Working Process**

The waste plastics is shredded (cut in to the particular size ) in shredded machine.

**Methodology;**

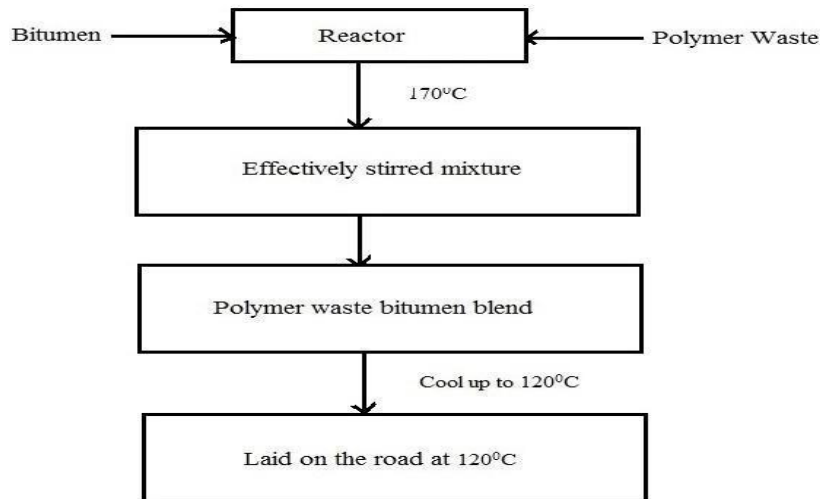
Waste plastic is cut and melt with the bitumen in the varying percentage. Means percentage of waste plastic is varying and mixed with bitumen. After plastic mixes increase the melting point of bitumen. And also partially replacement of aggregate with hard waste plastic . And resulting road is flexible during winter and its have long life.

**1-Dry Process**

For the road pavement, the aggregate is heated  $170^{\circ}\text{C}$  and bitumen is heated  $160^{\circ}\text{C}$  and cutting small size hard plastic mixed in to the chamber . and mixes use for road laying the aggregate is chosen on the basis of its strength, Porosity, and moisture absorption capacity as per IS coding bitumen is chosen from on the basis of its binding property penetration value and viscous elastic property.

**2- Wet Process**

These are the method use for formation of polymer based modified bitumen in which the waste plastic is directly added with bitumen and heated both  $170^{\circ}\text{C}$  so that proper bend is to be formed. Hot mix bitumen is cooled in the another chamber at  $120^{\circ}\text{C}$ . which is added to the aggregate and small size of hard plastic in paddling chamber.



**Figure-: Flow chart for wet process**

## CONCLUSION

1. Plastic will increase the melting point of the bitumen.
2. Use of innovative technology not only strengthened the road construction also increase the road life.
3. Help to improve the environment condition.
4. Plastic road should be a boon for India's hot and extremely humid climate where durable and eco-friendly road which will relive the earth from all type of plastic waste.

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