Importance of Plastic Pavement

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ABSTRACT: In this paper the study of some of plastic waste materials which we can reuse by certain processing and use in road construction. The materials as a result we are equipped with useful and valuable information about these materials. The discussed materials have many advantages over conventional/traditional materials and methods. This project will conduct a study on recycling plastic waste and blending it with bitumen to lay roads in India and compare with the environmental and economic conditions some of these materials are relatively cheaper and provide more strength as compared to traditional road materials. This project will come up with useful information and creating awareness amongst the learner in the industry regarding waste material. So that one can have a step towards further detailed information about these materials and thus be able to implement on field which will definitely improve the level of construction.

Keywords: Plastic Waste, Bitumen, Aggregates, Plastic Roads

1. INTRODUCTION
Plastic is everywhere in today’s lifestyle. It is used for packaging, protecting, serving, and even disposing of all kinds of consumer goods. With the industrial revolution, mass production of goods started and plastic seemed to be a cheaper and effective raw material. Today, every vital sector of the economy starting from agriculture to packaging, automobile, building construction, been virtually revolutionized by the applications of communication or InfoTech has plastics. Plastic in different form is found, which is toxic in nature. It is commonly collected both urban and rural areas. It creates stagnation of water and associated hygiene problems. Plastic waste hazard to the environment. Plastic waste can be reused productively in the construction of road.

2. WHY USE OF PLASTIC
Polymers have a number of vital properties, which exploited alone or together make a significant and expanding contribution to construction needs.

- Durable & corrosion resistant
- Good insulation for cold, heat & sound saving energy and reducing noise pollution.
- It is economical and has a longer life.
- Maintenance free.
- Hygienic & problems.
- Ease of processing/installation.
- Light weight.

3. Characteristics Of The Process
- Easy process without any new machinery.
- In situ process.
- Use of lesser % of bitumen.
- Use of plastics waste for a safe and eco-friendly process.
- Both Mini Hot Mix Plant and Central Mixing Plant can be used.
- Only aggregate coated and bitumen is not modified.
- Use of 60/70 and 80/90 bitumen is possible.
- No evolution of any toxic gases.
4. **Advantages of waste plastic bitumen**
   i. More durability.
   ii. Improved load bearing capacity and skid resistance.
   iii. Plastic disposal.
   iv. Cracks, abrasion, weathering and pot holes is reduced.
   v. Better resistance towards rain water and water stagnation.
   vi. Less wear and tear of vehicles.
   vii. Cost of the road will come down, as the road life is increased by 2 to 3 times.
   viii. The maintenance cost of road is very less.
   ix. Disposal of waste plastic will no longer be a problem.

5. **COMPARISON**
   1. The durability of the roads laid out with shredded plastic waste is much more compared with roads with asphalt with the ordinary mix.
   2. While a normal 'highway quality' road lasts four to five years it is claimed that plastic-bitumen roads can last up to 10 years.
   3. Rainwater will not seep through because of the plastic in the tar.
   4. The cost of plastic road construction may be slightly higher compared to the conventional method.
   5. The maintenance cost is low as compared to conventional method.
   6. It initial cost is slightly more as compared to conventional method.

6. **Conclusion**
   o The waste plastic bitumen mix forms better material for pavement construction.
   o Use of waste plastics for pavement is best methods for disposal of waste plastics.
   o The use of the innovative technology strengthened the road construction and increases the road life as well as will help to improve the environment and also creating a source of income.

**REFERENCES**


