

# Traffic Control Device from Waste Plastic – A Review

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**Abstract** — The main component of plastics is polymers, which come in a variety of synthetic and semi-synthetic forms. Plastics can be molded, extruded, or pressed into solid objects with varied shapes because of their property called plasticity. Plastics are everywhere we look, including our daily lives like furniture, electronics, clothing, food packaging, toys etc. From decades the plastic has spread all over manufacturing field replacing natural material like wood, paper, glass, and metal. This pervasive use of plastic had expedited to extreme pollution in the environment. In the present study the waste plastic is used for making traffic control devices. The waste plastic is collected from various sources, shredding is done to fine particles. By preparing moulds of required size the waste plastic is poured into the mould and traffic control devices are prepared as per IRC guideline. Testing and decoration is done.

**Keywords:** Traffic Control Device, Waste Plastic

## I. INTRODUCTION

We know that this plastic is harmful for human habitat. It cannot spoil the soil as it is unable to mix in soil. But Chlorinated plastic can release harmful chemicals into the surrounding soil, which can then seep into groundwater or other surrounding water sources, and also the ecosystem. This can cause a bundle of potentially harmful effects on the species that consume the water. Air pollution is possible when plastic is burnt for disposal. However, plastics aren't just an environmental issue as pointed out by toxicologist Prof. Dr. Dick Vethaak "We are dealing with a human health issue as well". Compared to 108 kg in U. S, 56 Kg in China, and 30 Kg as the global average the per-capita plastic consumption in India is only 13.6 Kg, according to the Plastindia Foundation India collects only 60 percent of plastic waste the remaining 40 percent is directly entering the environment. As we are seeing that because of plastic waste we are having many problems so we should use plastic in a good way so it will not remain as garbage on our land. So, as we are also looking towards the new India that we are becoming soon so many things are getting upgraded nowadays while we are moving forward so fast, we should also look that all humans are safe. Taking to the point the lead in number of accidents is taking place and so many people's dies because of it. Total number of road accidents happened in year 2019 is 4,49,002 and 1,51,113 people died. To reduce down the road accidents, traffic controlling devices are must. Some of the traffic control devices are traffic sign, traffic signal, traffic marking, traffic island, reflectors, delineators etc. These devices are usually placed near, adjacent, over or along the highways, roads, traffic facilities and other public areas that require traffic control.

## II. MATERIALS USED

- Waste plastic
- Stainless steel mould
- Hand gloves
- Utensil
- Stainless steel plier
- Radium
- Mask

## III. METHODOLOGY



Fig. 1: methodology Chart

## IV. TEST ON DELINEATOR

- 1) Compression test
  - 2) Hardness test (Scratch test)
  - 3) Izod Impact test
- 1) *Compression test*
    - Prepare at least 3 solid pipes in the manner.
    - Place the solid pipe on the platform of a compressive testing machine without picking between the solid pipe and plates of the testing machine.
    - Apply the load steadily and uniformly, starting from zero at a rate 35 N/mm<sup>2</sup>/ minute till the solid pipe fails.
    - Record the crushing load of each solid pipe and calculate compressive strength of each pipe.
  - 2) *Hardness test*
    - In this test, scratch on the surface of the solid pipes by a finger nails.
    - If no impression is left on the surface of solid pipes, then it is considered as hard otherwise weak.

3) *Izod Impact test*

- Observed and study the different parts of impact test machine.
- Draw the sketch showing the dimension of the specimen as per I.S.
- Set the pointer to maximum energy on the scale when the pendulum is free suspended. In this test the striking energy is used is about (160 to 165 joules). Raise the pendulum hammer to the required height. Release it allowing a free swing and observe the initial energy.

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