

ZERO WASTE PANCHAYATH PROJECT ANDHRA PRADESH

Use of shredded waste polyethylene covers of below 50 microns in laying of BT Roads

Plastic Roads



A Long lasting road from waste plastic
for a better and green world....

Disposal of waste plastic of below 50 microns
(about 5% of total solid waste) which is non
biodegradable is very difficult



Burning of plastic leads to pollution -animals affects the most



- Utility of waste plastic in bituminous mixture for Road construction was proved in laboratories
- It enhances the strength of the mix
- It is a solution for disposal of covers in an useful and scientific way

Process

- Collection
- Segregation at SWPC
- Cleaning process
- Shredding process

Collection

Collection with processing facility was established one at each Divisional level in Andhra Pradesh

Government of Andhra Pradesh made it a policy that Collection centre can procure waste covers from surrounding Gram Panchayats, rag pickers and public of Gram Panchayaths at the rate of Rs.20/kg(with transport) and Rs.30(without transport)

Segregation



- Plastic waste of below 50 microns (carry bags, wrappers of biscuits, snacks, soaps etc) collected from various sources must be separated from other plastic waste

Cleaning Process



- Removing dust and foreign material from plastic waste covers is important to maintain quality of the material and to not to cause damage to the machine
- Motor –
3HP/1040RPM/440V
- Drum : Mild steel
Price : Rs. 40,000

Cleaning Process



Plastic covers Shredding machine



Motor :10HP/1444
RPM/440 V

- Blade : 8nos(6+2)
- Bearing : 2 nos
- Output : about 100kgs per Hour
- Filter : 8mm Holes
- Price : Rs.1,60,000



May 30, 2017



May 30, 2017

Shredding Process

Plastic waste shredded or cut in to small pieces of 8mm size



8mm pieces



Feb 17, 2018

Central Government and Government of Andhra Pradesh are encouraging laying of plastic Roads and made it a policy



Sale to Engineering Departments like P.R,R&B & Municipal corporations at the rate of Rs.40/kg.

For every 100 kg of bitumen, 8 kg of shredded plastic is used.

Transport to Engineering departments



Laying of BT roads using shredded Polyethylene covers

- **8 to 10% of BT is replaced by shredded Polyethylene covers while laying BT roads**
- **The shredded Polyethylene covers are added to the metal chips in the hot mixing plant of Bitumen and the mixture of metal chips and shredded Polyethylene covers enter into BT chamber wherein the metal chips, shredded Polyethylene covers and the Bitumen mixes thoroughly.**
- **During this mixing process the shredded Polyethylene covers melt due to the high temperatures (roughly 150°C – 160°C) present in the BT chamber.**
- **This mixture is transported through tippers for laying of BT roads. We cannot use chips of plastic bottles because the temperature maintained in the chamber is not sufficient to melt them**
- **About 800 kgs of shredded plastic is used for laying 1km of BT road.**
- **Due to this durability or lifespan of the road increases by 2 years(from 5 years to 7 years) depending on the traffic of the road**

Bitumen plants



Mixing of plastic flakes with bitumen







Road laid in Kurnool District of Andhra pradesh



- How much plastic flakes supplied from ZWPP ?
And how many kilometres of road laid till now
in AP?

Advantages

- Increased binding and better bonding of the mix
- Better resistance towards rain water and water stagnation
- Stronger road with increased strength
- No leaching of plastics
- No potholes
- Value addition to the waste covers
- Disposal is no longer a problem
- Smaller carbon foot prints

Recycle or Reuse it all – no matter how small



CONCLUSION