

Reduction of Water Vapour by Using Shade Balls

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ABSTRACT

Now a days the water are wasting in many ways flood, sewage mixture, evaporation etc., so we are planned to reduced evaporation losses in natural water bodies by using the shades balls method. This project was first done in California, Los Angels by the Department of Water and Power (LADWP) in the year 2011 and their aim to prevent the formation of harmful organisms, algae and carcinogens by blocking U-V rays and main aim to prevent the evaporation. Our project is same with some changes in Cost & Reuse the waste. our balls are 4inch black& our materials are high density polyethylene ,Carbon black were used. our balls prevented the formation of bromide to avoid the stomach problems. HDPE plastic are commonly used for food and beverage containers as well as water distribution pipes. HDPE is cheap material but carbon black is costly material so we use waste tyres. It has 15 % precent carbon black.

The test are (Temperature, Melting,Pressure ,water&Evaporation).They floated on Top of a reservoir. Next to Thermo coal the shade balls reduce 45% evaporation in reservoir. This project is Economical low but more quality. Shade balls are Eco-friendly for Environment& for Humans. It is economical low and this used in lakes, ponds stream and dams. We used this method located at Namakkal district in the Nehru pond.

I. INTRODUCTION

Recently an article was published that every year water bodies are evaporated due to sun's radiation especially by U-V rays .So we are find a solution for water evaporation by using shade balls. Shade ball is a combination of High Density Polyethylene (HDPE) and Carbon black. It has a capacity of resistance of U-V rays. HDPE is a economical low cost material. But carbon black - a petroleum product it is economically high cost .So we plan a new method by burning Tyres. Because Tyre is a combination of natural, synthetic rubber, wire and carbon black. It has 16% carbon

black.so collect the waste tyres. We burned the tyres at high temperature. At least we get the ashes collect it the remaining ash is the carbon black and also we collected the waste HDPE pipes and burned at high temperature. Medicine bottle cap also collected and washed in hot water. Because cap also the mixture of HDPE pipe. Waste be reduced and recycled. Some materials are collected in garbage.so that tyres waste can be reduced and pipes too. Even the medicine bottle cap be reduced. This is one type of reuse or recycling. One piece of shade balls is 45\$ inIndia currency Rs-499.But in our

project no cost or minimum amount .Inn this project the water resource are not affected.

A. SCOPE

This project leads the new ideas and become a trending. This project is used for agricultural, drinking purposes.etc Tamilnadu having least number of water resources. But, during summer it losses due to evaporation. This may reduce by our project. We cannot saving the rain water and it let to waste so we to save that upcoming rains in the dams, lakes, ponds and water be saved by the shade balls.

B. OBJECTIVES

1. To prevent water resource.
2. To prevent water losses.
3. To reduces for the waste materials.
4. To prevent the growth of bromate.
5. To save the water in urgent period.

II. MATERIAL USED

1. HDPE Pipes & Caps (Waste)
2. Carbon black (tyre waste)

A. HDPE PIPES

They made from petroleum .It also known as polyethylene thermoplastic .with a high strength-to-density ratio. It used as plastic bottle cap, geo membranes, corrosion-resisting pipes. It sometimes called as alkaline or polythene. HDPE is commonly recycled and has the number '2' as its resin identification code.

Large density to strength ratio density ranges from 0.93 to 0.97 g/cm³ or 970

kg/m³.It has intermolecular forces and tensile strength. It also harder and more opaque and can withstand somewhat high strength(120C/248F for shorter periods. unlike polyethylene cannot withstand normally required auto caving conditions. The lack of bracing is ensured by an appropriate choice of catalyst and reaction conditions.

1) Applications

It is resistant many different solvents and has wide variety of applications.

- a) Swimming pool installation
- b) 3-D printer filament
- c) Arena board
- d) Ballistic plastic
- e) Banners

Milk jugs and hollow goods manufactured through blow molding are the most applications of HDPE.

Overall, China where beverage bottles are made from HDPE pipes. Milk jugs and hollow goods manufactured through blow molding are the most applications of HDPE.

B. Carbon black (tyrewaste)

Carbon black is a material produced by the incomplete combustion of heavy petroleum products such as FCC tar, coal tar, ethylenecracking tar, with the addition of small amount of vegetable oil. Carbon black is a form of Para crystalline carbon that has a high surface-area-to-volume ratio albert lower then that of activated carbon.it is dissimilar to soot in its much higher surface-area-volume ratio and

significantly lower PAH (polycyclic aromatic carbon) content. However carbon black is widely used as a model compound for diesel soot for diesel oxidation expedient's. Carbon black is mainly used as reinforcing filler in tyres and other rubber products. In plastics, paints and inks carbon black is used as a colour pigment.

The current International Agency for Research on Cancer (IARC) evaluation is that, carbon black is possibly carcinogenic to humans. Short-term exposure to high concentrations of carbon black dust may

carcass grades of carbon black to optimize such properties as handling, tread wear, fuel mileage, and hysteresis and abrasion resistance for the ever changing needs of today drivers.



SHAPE OF BALL TEST PRESSURE TEST

S. NO	DAYS/HOURS	EVAPORATION (WITH OUT SHADE BALLS)	EVAPORATION (WITH SHADE BALLS)
1.	1 DAY	50 L	50 L
2.	5 DAYS	49.9 L	50 L
3.	15 DAYS	49.85 L	49.97 L
4.	20 DAY S	49.24 L	49.82 L
5.	30 DAYS	47 L	49

produce discomfort to the upper respiratory tract, through mechanical irritation.

1) USING TYRE BY CARBON BLACKS

Carbon black used in various formulations with different rubbers type to customize the performance properties of tires. Engineers combine different tread and

I. TABLE

Normal water level = 50 litres

Size of tank = (60 × 25× 45) cm

III. CONCLUSION

From the experimental test results, Shade balls found to be better performance in reduction of water vapour.

There are many wastage especially tyres, pipes, bottle caps .So we collected that in the garbage. In our project these materials plays the important roles. Tyres which are the mixture of natural, artificial rubber and carbon black. Carbon is a high cost material so we burned the tyres at least the ash (carbon black) was remained. Pipes, Bottle caps are collected with dust, so we want to wash it and used for our project. From our project, the waste are reused or recycled at low cost or minimum cost. The testing are also easy method. Temperatures, pressure, are tested. Water test & drinking test are

tested by some chemicals .These tests are critically successfully.

In India, especially Tamilnadu we having limited water resources. But we not keep in good condition.

Water wasting by many ways especially Evaporation or Water vapour.so we want to reduce or control. Thermo coal is a low cost material and can stop the vapour up to**65%** but due to its light weight it can fly so it failure project .In California's Shade balls a high cost material it can stop the vapour up to**47%** compare the cost its high cost in India. But our Shade balls or Black balls low cost and can stop the vapour up to**43-45%** we can float on the top of water resources in anywhere and shade balls are eco-friendly.

blends used in passenger tire treads:
Assist prof. Jawad K

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