

CASE STUDY ON TAJ MAHAL TURNING YELLOW: AGRA CITY

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Abstract: Agra is most prominent city which is most populous for their beauty and monuments .For tourist destination Taj Mahal and Agra Fort are world Heritage Sites. In recent report on 2 Jun 2016 Taj Mahal Turning Yellow due to burning heap of plastics and municipal solid waste. In our research work we had found burning heap of plastic and polyethene release toxic gas which are responsible turning white marble into yellow. However Mathura refinery is also responsible for turning 17th century white marble into yellow. Decomposition of waste plastic and polyethene is serious problem for our environment. In 2016 Agra city generating plastic waste approx. 180 tons per Months which is creating tremendous problem of our country. In our experimental setup not only decomposed plastic waste takes placed but also generating crude oil from this process.

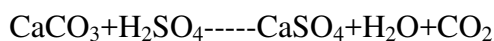
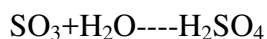
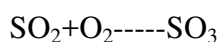
The experimental set up show 1tons of plastic generating 112 liters (approx.) oil.

Key words: Taj Mahal, Plastic, Tons,

1. INTRODUCTION:

India prime minister shri narendra singh modi more focus on clean and green india on which he went to many city for cleaning of road ,rivers etc .key element for spreading pollution is polyethene,plastic,bottle ,household item etc.Plastic are malleable which can be molded into solid objects ,consists of wide range of synthetic organics. Plastics contain organic polymers of high molecular mass and other substances. They are usually synthetic, most commonly derived from partially natural and petrochemicals. Plasticity has to deform without breaking, but it is done such a degree with this class polymers that their name is significance on this ability.

Taj mahal turning yellow due to Mathura refinery which is owned by Indian oil Corporation .this refinery releases toxic gases (SO_x, NO_x) in the atmosphere and formed Acid Rain .This acid rain is fall in 19th century white marble then following reaction takes places:



Taj mahal made up of Marble which has larger crystals and smaller pores. Though it has highly durable materials, building and monument get eroded away by acid rain.



Fig1.1 Pictorial View of waste Garbage near Taj Mahal

Due to their cheap, ease of manufacture, adaptability, and holding to water, plastics are used in an huge and expanding area of products. former uses plastics that already displaced many historical materials such as ,horn and bone, leather, paper, stone, metal, wood, glass, and ceramic. In many developed countries, about a Fifth of plastic is used in piping plumbing or vinyl siding and another used as packaging. 20% plastic is uses in automobiles, furniture, and radiogram. India’s consumption 42% plastics which is used in packaging the ratio is different In the developing world. A plastic is uses in the hospital and medical equipment as well manufacture polymer, however plastic play very important role in the field of plastic surgery for reshaping of flesh.



Fig1.2 Burning garbage in open environment



Fig1.3 collecting waste plastics from heap of garbage.

Plastic waste pollution involves the agglomeration plastic products in the environment that not only affects wildlife but also humans. Plastics waste act as pollutant are classify into mesodebris based on size. The eminence of plastic pollution is correspond with plastics waste being low cost and tenacious.

2. Material and Methods:

2.1 Materials required

- | | |
|------------------|----------------|
| 1. Waste plastic | 2.Reactor |
| 3. Copper pipe | 4.steel beaker |
| 5. Conical flask | 6.Stand |
| 7. Fuel gas | 8.RTD Sensor |

2.2 Method

This Process is divided into three sections-

- I. Heating section
- II. Condensation Section
- III. Receiving Section

The Waste plastics collected near Taj Mahal area that waste plastics is heated in the closed Reactor about 587°C the Vapor form of the plastics is condensed in the condensation sector. On condensation the Vapor of plastics is convert into liquid form which is collected on receiving section.



Fig 2.1Pictorial View of heated Waste plastics



Fig2.2Pictorial view of Experimental setup

3. Result and discussion:

As flow diagram shown in below in which waste plastics is feed in the SS Reactor on jacket of the reactor steam is applied maintaining temperature 500-600⁰C.the vapor of plastics is condensed in the shell and tube heat exchanger and waste residue left in the reactor .Finally vapor of waste plastic is converted into liquid form and collected in the receiver sector.

The experimental shows that using 1 tons of waste plastics is generated 112 liters of crude oil which is used in lubricating.

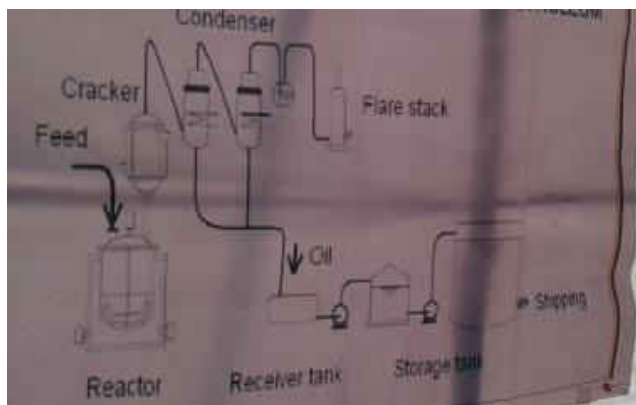


Fig3.1 Flow sheet of plastic waste

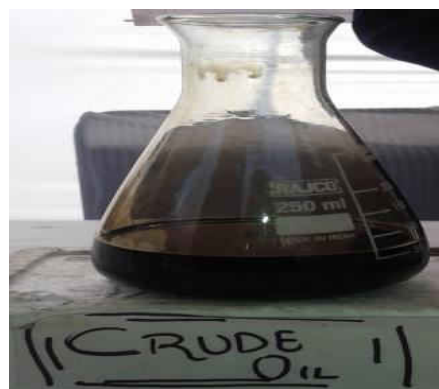


Fig3.2 Pictorial view of crude oil

4. Conclusion:

The results show 1tons of plastic generating 112 liters (approx.) Crude oil.

5. References:

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