CARBON DIOXIDE ABSORBANT

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ABSTRACT:-

Here is a simple project more useful in controlling the increasing carbon dioxide level on the busy streets. We all experience the increasing pollution on the streets on a daily basis during our daily travels. Pollution is one of the biggest environmental problems faced by humans today. Even precautionary measures taken in vehicles fail most of the time.

So here is a simple idea which could be used to reduce the carbon dioxide level by some extent.

INTRODUCTION:

With the development of technology, many measures are taken to reduce the pollution exhaust from the vehicles but still with time, many vehicle's precautionary system fail. There are very few many in implementation to reduce the CO2 content in the air around us. Some of the methods are extremely tedious and none are in implementation in India. Our project is reusable as well as cost effective.

1.Procedure:

1. We used a simple reaction concept, that is, the graphitized petroleum coke was made to react with dilute potassium hydroxide solution for the process of activation at a temperature of 300-400 degree Celsius.

The entire set up was kept in an oven at 300-400 degrees for atleast 8-10 hours (longer the time of heating, more effective is the extent of absorption of carbon dioxide).

2. The activated petroleum coke becomes porous. These pores then absorb carbon dioxide from the nearby environment.

2.Ease of Use:

1.The product formed from the above procedure is extremely easy use since its only requirement is to be hung in a frame holder in a carbon dioxide abundant area.

2. Once the porous material is completely saturated, it can be removed and reheated again at the same temperature. This way the product again becomes porous and is ready for reuse.

3. The activated petroleum coke can be hung at signals, tolls, four way roads, markets and other areas of traffic. It immediately starts absorbing CO2 from the surroundings.

Result and verification:-

The absorption of CO2 by activated coke can be verified by the increase in weight of the pet coke after hanging it for 2 days.

Intial weight after activation = 342 grams

Weight of the pet coke after 2 days = 346.56 grams

Percentage increase in weight = 1.33%

Taking into consideration the dust factor of the environment, an approximate 1.2% of unaccounted weight of CO2 can be observed.

***Main components:-**

1. Graphitized petroleum coke: graphitized pet coke has unique thermos-physical properties. Even the shape of the coke must be in a way to give maximum surface area for absorption.

2. The oven: the oven should support a temperature of atleast 400-500 degree celcius and should be big enough to contain a considerable amount of coke.

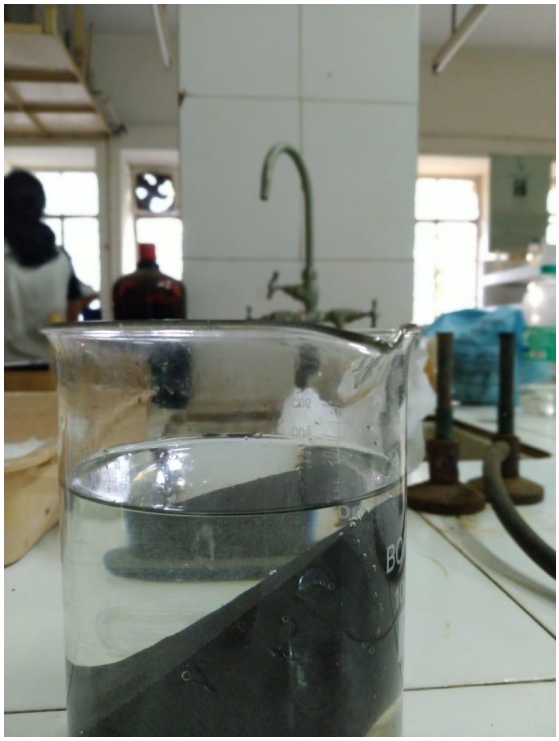
***Other Components:-**

1. dilute solution of potassium hydroxide (KOH)

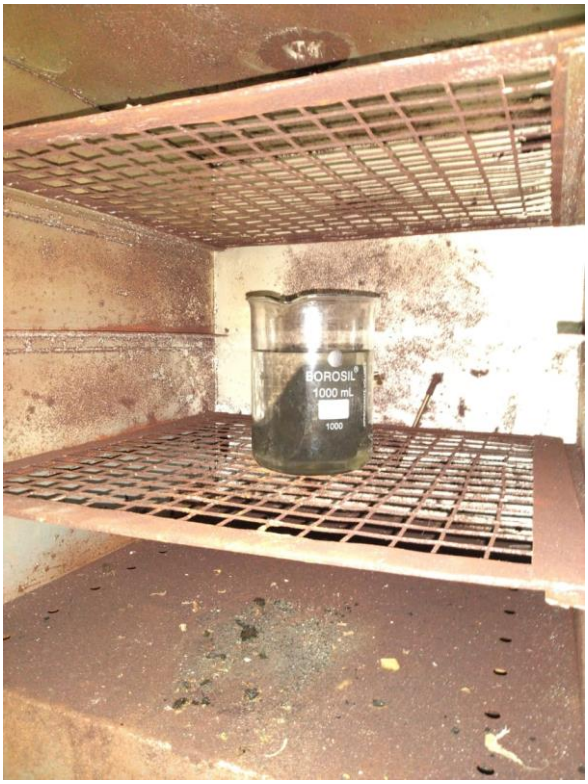
2. thin frame container holder: used while hanging the product in the environment.

3. borosil beaker

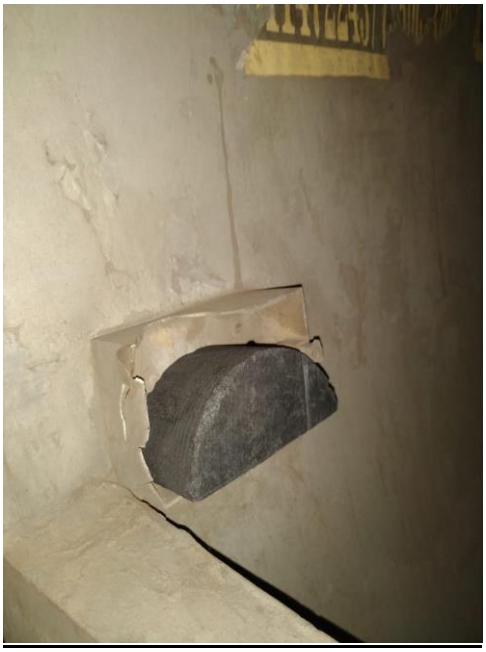
IMAGES DURING EXPERIMENTATION:



PETROLIUM COKE IN KOH SOLUTION



PETROLIUM COKE IN OVEN



PTROLIUM COKE AT TRAFFIC SIGNAL

Some Common Mistakes:-

1. Maintaining the such a high temperature is a difficult task and finding the right range of temperature for best results can be confusing.
2. If not heated for a suitable duration of time, the result may not be noticeable.
3. The time span of saturation can confusing taking in account the different environmental situations under consideration.

REFERENCES:-

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3. books on thermo-physical properties of petroleum coke.

4. Expert advice by proff. Mansi Ghamande.