

Air Pollution and its Prevention

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Abstract:- Now a days air pollution is most dangerous problem in the world. Many increase the industrial areas and power plants. Direct impact of these pollution in human health. Their cause may be to face some dangerous diseases. Like skin problems, cancer, T. B, etc. To avoid of these some precautions to be taken. The most popular is the vehicular air pollution. In our Indias 70% air pollution is vehicular air pollution. Avoid of these air pollution some path are created. That is the mechanically operated magnetic cyclone scrubber. Also the main effects of air pollution is that the decrease of ozone layer. And ultraviolet rays are directly entered in our Earth. There cause may be a many people face to be a skin problem like a skin cancer. In the summer season temperature increases day to day. These some many problems only one solution is that the prevention of air pollution. The main components of the atmosphere are Oxygen to breath ,Carbon dioxide for photosynthesis, Nitrogen for forming products as fertilizers for plants and making the air inert and Ozone layer against sun rays .Any imbalance in quality of air so as to cause adverse effects on the living organisms is known as air pollution. Air pollution is becoming largest problem that affects millions people worldwide. Some part of disease formed to air pollution .In these industrial age ,air pollution can not be eliminated completely, but steps can taken to reduce it. Additionally, buying a electrical charged vehicle or solar vehicle.

Keywords:- Air Pollution, General Information, Prevention and Control.

I. INTRODUCTION

A material who cause the adverse effect of animals and plants is known as the pollutant. Transportation is daily travels by road and road is constructed to the earth's surface. Hence we can proved that the mostly effect of air pollution is earth surface. On the second hand farm is road touch, hence the most effect of these pollution are to growth of farmers crop. Indirectly the effects of our economy. Hence we can take care of the avoid of air pollution and their prevention. We can provide the air filter to side of road ways. Because we can fillter the air and control of air pollution. Their is 60% efficiency are achieved. Hence some part of air pollution we can controlled. Air pollution are classified manly two types. i. e .indoor air pollution and outdoor air pollution. In case of indoor air pollution their is domestic pollution. And in case of outdoor air pollution their may be vehicular or some natural air pollution. In case of natural air pollution their may be a lot of pollution of air and create a dangerous

pollutant. Their may be a particular matter (PM), dust, arerosol etc. These control of air pollution we can found that mechanically operating system i. e magnetic cyclone air scrubber. Both human activity and natural processes can generate air pollution. Indoor air pollution and poor urban air quality are listed as two of the worlds worst toxic pollution problem. Sources of particulates can be man-made or natural. Some particulates occur very efficiently dangerous to our lungs. And they can created some lung problems or disease.

II. SUPPORTING INFORMATION

A. Air Quality Concerns to highly population areas -

- Non-attainment cities.
- Daily pollution Sources : Vehicular Emission ,Small/Medium, Scale Industries, Gensets, Biomass Burning etc.

B. Critically Polluted Areas-

- Critically Polluted Areas.
- Dominant Sources: Industrial Power Plants ,Refineries , Chemical Plants etc.

C. Rural Areas-

- Indoor Air Pollution:These pollution most of the rural areas, Coal, Kerosene etc.
- Outdoor Air Pollution: These pollution most of the transportation facilities , Biomass Burning, etc.

III. SOURCES OF AIR POLLUTION

A. Natural Sources –

- Wind Dust
- Salt Particle From Sea Water
- Micro-Organism/ Bacteria
- Gasses And Odour
- Volcanic Eruption Gas
- Oxides Of Nitrogen
- Earthquake
- Land sliding

B. Manmade Sources –

- Combustion Process
- Chemical Process
- Petroliam Operation
- Metrological Process
- Mineral Processing
- Food Industries
- Agricultural Activities
- Nuclear Energy

A. Natural Sources

➤ Volcanic Eruption Gas:-

When volcanic eruption formed magma are spread over earth surface. And also some gaseous are formed like a ash, hcl,etc. The main effect to eruption of magma animals and plants. Many villages are caused by diseases due to magma eruption. large eruptions can release enormous amount of gas in a short time . In case of volcanic eruption there is lot of pollution created. Because large amount of dust particle spread to air. As well as the some many gaseous are spread out the atmosphere. The volcanic eruption areas dangerous to human health. Because the some people's are handicapped. And some people's are died. Because the eruption of foul gaseous.

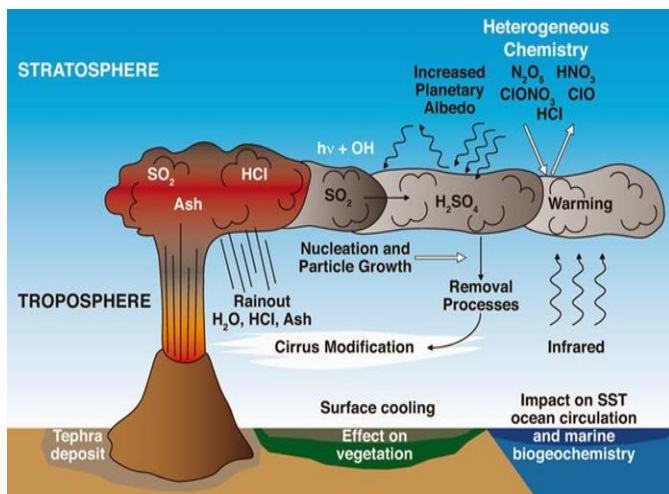


Fig 1:- Volcanic Eruption

➤ Industry Specific Control Strategies -

• THERMAL POWER PLANT:

- ✓ Utilization of ash laid down.
- ✓ Enforcement Of PM Emission Standards.
- ✓ More use of charcoal.
- ✓ Promotion of Clean Coal Technologies.

IV. PREVENTION OF AIR POLLUTION

A. Government (or community) level prevention:-

- Our government provide some schemes of use the renewable energy and green energy. Hence the people are directly use to a gas free energy.
- Government specifies the limits of industrial air pollution. In these rule we can control of some part of air pollution.
- I want to suggest government is that during vehicle licence verification one condition should be there is nothing but owner of vehicle must have planted 4/5 trees.

B. Individual level prevention :-

- We can decide the use of renewable energy. Like a solar energy, biomass and other industrial products to form a more pollution industries. We can also use a 3R

technique in our daily life. And other people's encourage to 3R technology use.

- Motivate the our family and our friends family to less use of vehicle. Use of government sources to traveling. Hence it is eccencial for use of less fuel, and reduce air pollution.
- Recycle and re-use things. This will minimize the dependence of producing new things. Remember manufacturing industries create a lot of pollution, so if we can re-use things like shopping plastic bags, clothing, paper and bottles it can help to avoid a industrial pollution.

V. CONTROL DEVICES

The following items are commonly used as pollution control devices by industries or transportation devices. They can either destroy contaminants or remove them from an exhaust stream before it is emitted into the atmosphere.

❖ Magnetic Dust Cyclone (Dust Cyclones, Multi-Cyclones)-

A. Cyclonic spray scrubbers are an air pollution control technology.

They use the features of both the dry cyclone and the spray chamber to remove pollutants from gas streams. Generally, the inlet gas enters the chamber in a corkscrew motion, and exit. At the same time , liquid is sprayed inside the chamber. As the gas swirls around the chamber, pollutants are removed when they impact on liquid droplets, are thrown to the walls, and washed back down and out. Cyclone scrubbers are generally used to a vehicle silencer.To connect by welding or fitting the cyclone scrubber. Also we can provide the cleaning of dirty flumes by various types of sponge. These sponge we can daily clean or a day of weak. Also we can attached to a magnet. The work of magnet the absorb dust particle. Hence some part of air pollution prevented.

➤ How it works

The cyclone filter work as a centrifuge. The firstly the polluted air we can pass out the magnetic ring of filter. These magnetic ring attract to words the heavy dust particle. Secondary filter works as a sponge. The sponge are capture the remaining pollution particles. This spiral formation we can also use the two wheeler or four wheeler vehicle. The mechanically operated cyclone scrubber is attached to a silencer of vehicle. We can use these mechanically operated cyclone scrubber avoid or prevention of some part of air pollution in our country. As well, these cyclone scrubber are attachment or fixed the magnet. Because the magnet work for to attract the solid dust particle in atmosphere. Second option is that the we can also use of various types of sponge in scrubber. Hence the help of some amount of control of air pollution in our daily life. We can need to some modification of scrubber and their attachments. The size of scrubber is reduced. Then the we can use the vehicle silencer.

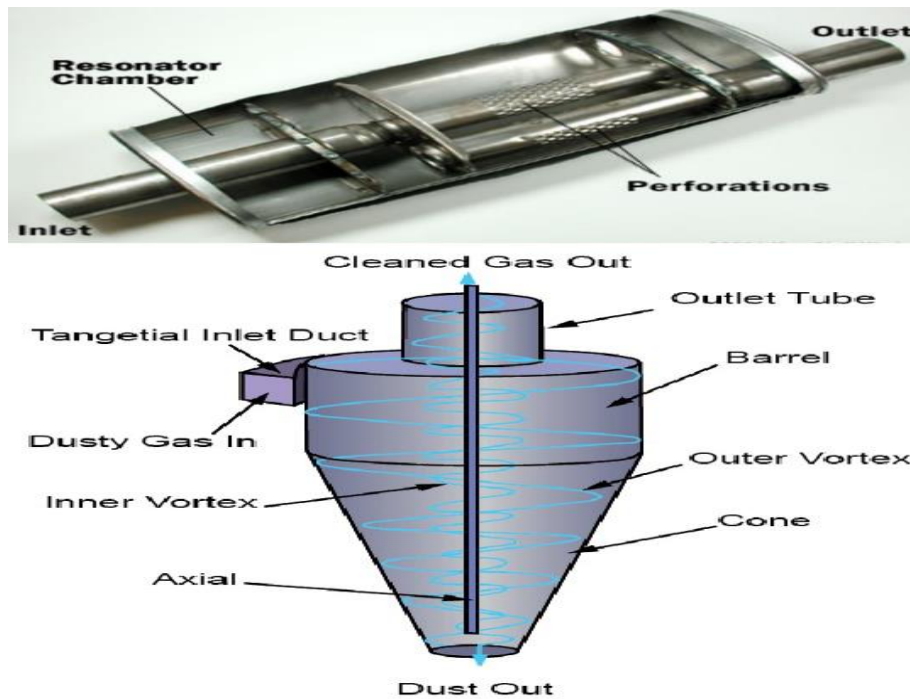


Fig 2:- Silencer and Cyclone filter

➤ Advantages And Disadvantages :-

- *Advantages of cyclones are :*
 - ✓ As compared to other filters low cost
 - ✓ Ability to work in high atmospheric temperature.
 - ✓ Low manpower required to operate as well as maintenance cost is low.
 - ✓ Dry collection and disposal.
- *Disadvantages of cyclones are :*
 - ✓ Unable to tackle sticky material.
 - ✓ High efficiency unit may experience high pressure drop.
 - ✓ High operating cost.

B. Magnetic Air Scrubber Machine

Magnetic air scrubber are pollution control device or system. Mainly the magnet works as a to attract dust particle as well as the heavy matter. These machine draw air in from the surrounding environment and pass it through a series of filters to remove contaminants. An air scrubber is a portable filtration system. The size and complexity of an air scrubber system will depend on the size of the space being serviced, as well as the range, type, and size of contaminants that must be removed from the area. Especially the main purpose of the air scrubber to collect the solid particle of smoke or gas. We can use the air scrubber the four wheeler as well as two wheeler vehicles silencer. See the fig (c) we are also providing these air scrubber to side margin of roads or also we can use the divider of roads. Because of air create the vehicles directly suck by using the air scrubber.

➤ How It Works

- *Pre-Filters-*

First stage of air scrubber to polluted air are primary cleaning to use of a free filter. The huge amount of pollution like a dust particle are collected to a Pre - filter or magnetic filter. The 60% polluted air are cleaned in the Pre - filter. These Pre - filter made up of magnet. The work of magnet attract the dust particles, matter, etc.
- *Optional Carbon Filter-*

Many situation the air are donot properly cleaned. Then we can use the optional carbon filter. Also these filter also work as a two remove odour or remaining dust particle. It is most important to in part of a safety stock.
- *Primary Filter –*

Lastly we can use the primary filter. These filter are high efficiency. The polluted air can be removed by 86%. These primary filter are maintained by two to three times of week. Then gives more result and accurate efficiency. Primary filter are keep a clean time to time.
- *Blower-*

Air scrubber require a dependable blower, which pulls air through the filters and exhaust the filtered air out of the unit. The blowers power level must be work well with the efficiency of the installed filter system, as a blower that is too powerful may actually decrease the system efficiency.

These four parts of air scrubber machine actually works, we can gives more efficiency as compared to other devices. The polluted air 80-86% recover the clean air. Hence we can control of vehicular and industrial air pollution to use of air scrubber filter.

➤ *Flow Diagram of working of magnetic air scrubber :-*

Pre-filter (magnetic filter) – optional carbon filter--primary filter (sponge filter) – Air blower - existing fan.

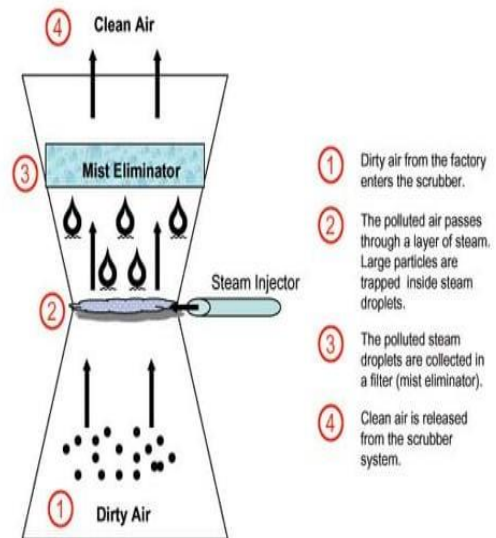


Fig 3:- Air Scrubber Filter Provided at Side of Road

VI. CONCLUSION

Air pollution require the emission of all fossil fuels burning process, from industrial manufacturing to home use of air conditioners. The burning gaseous are form to industries. There causes a loe of disease like asthma, cancer, T. B, some many skin problems. Hence we can provide more better for scrubber in the part of chimney.

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