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Waste Water Treatment by Using AGFM (Activated Glass Filter Media) and Eco-Clean 2300

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ABSTRACT

Water problems are increased day by day so water treatment is most important. In this project we are going to use Eco-tech process with the help of Eco-clean 2300 and AGFM(Activated glass filtration media) for sewage treatment. ECOCLEAN-2300 is a single dose herbal reagent for water flocculation, sedimentation and disinfection of water. This method remove totally odour and bacteria from the waste water. Eco-clean 2300 it is the herbal extract Neem, Tulsi, Moringa and Cleaning nut with proven water purifying capabilities bound together using a water soluble organic solvent. It totally nontoxic and safe to use. The model consist of layer of activated charcoal and AGFM during a filter. Waste water once filtered through a activated carbon filter and activated glass filter media the treated water is fit for reuse.

Activated glass filtration media replaces traditional sand media in all filtration applications. It is manufactured from a specific glass type and processed to obtain the optimum particle size and shape. Then activated to increase the surface area by 300 times cover crushed glass or sand. We are going to treat domestic waste water by using this new filter technique. We have check for the characteristic of waste water like Total suspended solid, Chemical oxygen demand, Total solid, Biochemical oxygen demand, Alkalinity and pH etc. This treated water by Eco-clean 2300 and AGFM is usefull for gardening, cleaning, washing. This method is economical than other treatment method.

Keywords: Waste water, Activated glass filter media, Eco-clean2300, Characteristic.

I. INTRODUCTION

Waste water treatment is the process of removing contaminants from waste water and household sewage, both effluents and domestic. It includes physical, chemical and biological contaminants. Its objective to produce an environmentally safe fluid waste stream and a solid waste suitable for disposal or reuse. The objective of waste water treatment is to produce a disposable effluent without causing harm to this surrounding environment, and prevent pollution.

It is very important to provide some degree of treatment to waste water before it can be used for reuse. The principle objective of waste water treatment is generally to allow human effluents to be disposed of without danger to human health or unacceptable damage to the natural environment. According to a research, a large number of people die from water born diseases in most of the developing countries. Therefore, it is very important to get the proper treatment of the water for a healthy living.

II. METHODS AND MATERIAL

The material used for forming the filter is gravel, sand, AGFM, activated carbon and wire mesh.

1. Gravel – Filter gravel is an extremely effective filter media because of is ability to hold back precipitates containing impurities. Filter sand size, angularity and hardness are the important filter sand characteristics to ensure proper filtering.

2. AGFM(Activated glass filter media) – In large water filtration systems, it is a modern replacement for traditional sand media. The use of a particular type of glass is activated; it offers an increase in its surface area and is negatively charged to attract an extract both heavu metal compounds and organic residues from water in order to purify it. Activated filter media is a more modern and better replacement for the old sand methods depending on installation and inbound water quality, the use of activated glass can double the performance and effectiveness dramatically over older systems for high output water purification. Whilst glass filtration is more effective than silica, activated glass filtering is even more effective again.

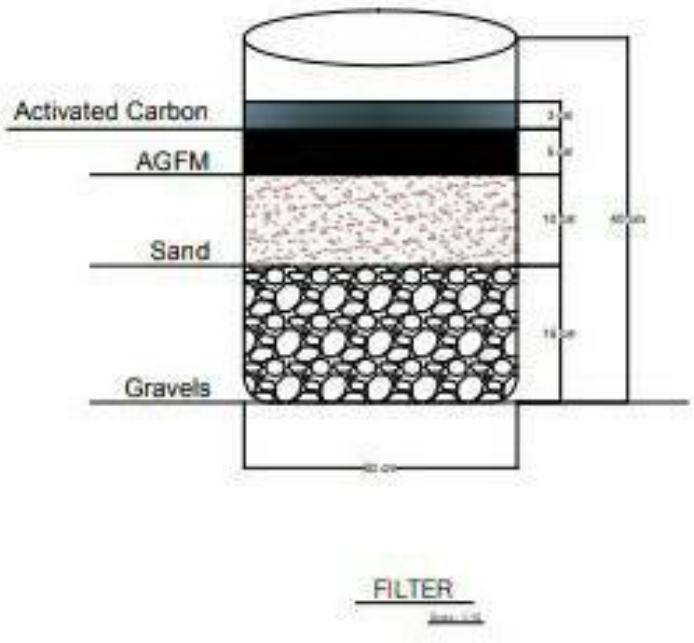
Benefits of activated glass filter media –

- Filters at least 50% better than traditional Sand method.
- Targets efficient removal of organics, or inorganics, oxides and other metals and minerals.
- Eliminates algae growth.
- Over 30% lower running cost vs sand.
- Filtration down to several microns t 100% efficiency without filtration aids.

3. Eco-clean 2300 – Eco-clean 2300 is a single dose herbal reagent for water flocculation, sedimentation and disinfection of water. It is a combination of herbal extracts(Neem, Tulsi, Moringa, and Cleaning nut) with proven water-purifying capabilities, bound toghether using a water-soluble organic solvent. Its totally non toxic and safe to use.

III. EXPERIMENTAL SETUP

The experimental setup was made with a plastic bottle which has a diameter of 30 cm and a depth of 35 cm with a small opening at bottom for collecting filtrate water.



FILTER

IV. PROCEDURE

- Collect the domestic waste and done the primary treatment of this sample.
- 400 ml of sample was taken in a beaker and a single drop of eco-clean was added.
- It was mixed throghly and the flocculation starts.
- Initially the sand gravel are clearly washed and oven dried.
- The activated filter media is washed three consecutive times with potable water and then rinsed it for an hour.
- Gravel are sieved for a grade 3 to 40 mm and sand 0.25 to 2.36 mm.
- Gravel is placed at the bottom for 15 cm depth.
- Sand is placed above gravel to a depth of 10 cm over which grade to activated glass filter is placed to a depth of 5 cm.
- Rinse the entire setup with distilled water twice.
- Now, take 2 litre of water effluent sample and pour it into the setup.
- Collect the treated water from the test setup and test for the physio-chemical parameters and note the values.

V. CHARACTERISTICS

Physical characteristics of waste water –

- Colour
- Odor
- Temperature
- Turbidity

Chemical characteristics of waste water –

- Chemical oxygen demand
- Total organic carbon
- Nitrogen
- Phosphours
- Chlorides
- Alklinity
- pH

Biological characteristic –

- Biochemical oxygen demand
- Oxygen required for nitrification
- Microbial population

VI. RESULT AND CONCLUSION

- The data reveals that some of the parameters tested were not within the permissible limit as prescribed by WHO and others standards. Quantitatively water in the studied is not hard an with metal content at the discharge point.
- The collected water sample where treated with AGFM and all the parameters were within the permissible limits prescribed by WHO and other standards.
- The treated water can be used for gardening, flushing, cleaning, irrigation purpose but not for drinking purpose.

VII. REFERENCES

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