

EXPERIMENTAL STUDY COST EFFECTIVE WASTE WATER TREATMENT FOR MICRO UNITS

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ABSTRACT: A cost effective single unit effluent treatment plant for waste water may be developed to purify the industrial waste water and sewage waste water. Effluent sewage water is also used for reusing and recycling purpose so has reduced depending on waste water. The chemicals such as a poly aluminium chloride are being used for treatment the micro units application for a purification and water as a purification agent. The remains will be conducted known its initial various test form. Potential hydrogen (pH), suspended solid test, biaxial oxygen demand, Chemical oxygen demand, jar test apparatus, turbidity level. After the addition Poly aluminium chloride dosage will me 1g, 2g, 4g, 6g adding in the sample water 100 ml. And the sample water coagulant flocculent in waste water treatment process in micro units

Key words : Sewage water ,Poly aluminium chlorides, Industrial waste water,

Introduction to Wastewater Treatment

Industrial wastewater treatment is any process that separates and removes contaminants from industrial process waters, or effluent.

These contaminants include oils, dissolved heavy metals, suspended solids and organic compounds. Either the local municipality or the Federal Government regulates the specific contaminants. A series of limits are set to determine the suitability for discharge. These limits must be met for the water to be legally discharged. If these limits are not met, the water must be pre-treated before being discharged, to remove the majority of the regulated contaminants. Although we are technically providing pre-treatment systems, we refer to them as treatment systems.

What makes Wastewater Engineers, Inc. different from other companies offering similar systems? We have a commitment to the industry. We specialize in this area, and can provide common sense advice derived from years of experience. We provide a written guarantee of our systems' performance. We bring fluid management

expertise to our clientele, providing added benefits and cost savings.

We provide complete, turn-key systems, which handle the water from source to discharge. We provide excellent service after the sale, and back our systems with warranties up to 3 years. We have adopted a three-phase approach to treating industrial wastewater. The three phases are Pre-treatment, Chemical Treatment, and Post-treatment. Free Oil And Soluble Oil Often, it is necessary to remove gross oils from a waste stream prior to chemical treatment. We supply traditional belt and wheel skimmers and also an innovative honeycomb "on the flow" coalesce, which can separate up to 97% of free oils in the first pass. This range of "on the flow" coalesces are called L-OR and OR series. Emulsified oils and grease products require an emulsion breaker to achieve the floating characteristics of free oils. Once "popped" the oils may be easily skimmed or coalesced.

Material & methods:

Material:

- Sulphuric acid
- Sodium thiosulphate
- Magnet sulphate
- Alkaline iodide
- Ferrous ammonium sulphate
- Ferns sulphate
- Potassium dichromate
- Poly aluminium chloride

Methods:

- pH scale(power of hydrogen)
- BOD(bio chemical oxygen demand)

- COD(chemical oxygen demand)
- Suspended solids
- Turbidity

pH SCALE: pH is a scale of acidity from 0 to 14. It tells how acidic or alkaline a substance is. More acidic solutions have lower pH. More alkaline solutions have higher pH. Substances that aren't acidic or alkaline (that is, neutral solutions) usually have a pH of 7.

BOD: Biochemical Oxygen Demand is an important water quality parameter because it provides an index to assess the effect discharged wastewater will have on the receiving environment. The higher the BOD value, the greater the amount of organic matter or “food” available for oxygen consuming bacteria.

COD: Chemical oxygen demand (COD) is a measure of the capacity of water to consume oxygen during the decomposition of organic matter and the oxidation of inorganic chemicals such as Ammonia and nitrite.

SUSPENDED SOLIDS: Suspended solids refer to small solid particles which remain in suspension in water as a colloid or due to the motion of the water. It is used as one indicator of water quality.

TURBIDITY: The definition of Turbidity is the cloudiness or haziness of a fluid caused by suspended solids that are usually invisible to the naked eye. The measurement of Turbidity is an important test when trying to determine the quality of water

RESULT& DISCUSSION

This test result was before adding PAC in waste water value results in (TABLE 1).and after adding PAC test result was in (TABLE 2).

TEST	AFTER ADDING PAC IN WATER		
	SEAWAGE	AREIAL	OUTLET
BOD	13.01	15.2	14.3
COD	12.3	14.6	11.2
pH	7.3	7.65	11.7

TABLE 2(AFTER ADDING PAC)

Turbidity amount of sewage, aerial & Outlet water have been tested by adding Poly aluminium chloride and noted in the following (TABLE 3)

Poly aluminium chloride	TURBIDITY		
	Sewage water	Aerial water	Outlet water
1g	42.3	124.6	84.5
2g	18.2	110.5	81.5
3g	19.7	109.5	85.7
4g	23.7	109.6	92.4
5g	28.5	108.4	93.3
6g	35.6	120.7	94.6

TABLE 3(TURBIDITY)

The above seen data (table 3) have been plotted has graph in the following

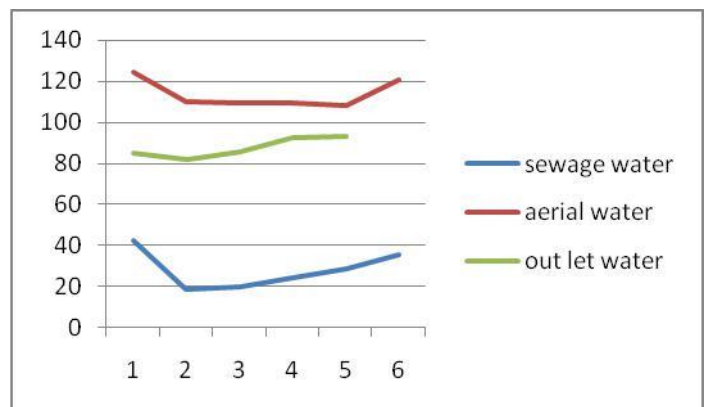


Fig 1(GRAPH FOR TRBIDITY TEST)

TEST	BEFORE ADDING PAC IN WATER		
	SEAWAGE	AREIAL	OUTLET
BOD	35	43.4	56.7
COD	137	140.09	151.08
pH	8.4	6.7	13.7

TABLE: 1(BEFORE ADDIN PAC)

DISCUSSION:

We have gone through the BOD, COD, pH, & turbidity test for sewage water, aerial water, outlet water. It should be the result higher then permissible result. before adding poly aluminium chloride has we could its same producer for the same sewage water, aerial water, outlet water but we added poly aluminium chloride for the respective water it's should the different result which was lower than the perimeter limits.

RESULT & DISCUSSION:

We testing the industrial waste water before adding poly aluminium chloride result were given in (Table 4)

PERIMETER	BEFORE ADDING PAC IN WATER
pH	8
BOD	4.517
COD	11.53

TABLE 4 (BEFORE ADDING PAC)

PERIMETER	AFTER ADDING PAC IN WATER
pH	7.78
BOD	5.57
COD	14.6

TABLE 5 (AFTER ADDING PAC)

Turbidity amount of industrial water have been tested by adding Poly aluminium chloride and noted in the following (TABLE 6)

Poly aluminium chloride	TURBIDITY
1g	120.5
2g	135.6
3g	175.6
4g	202.6
5g	307.6
6g	105.8

TABLE 6 (TURBIDITY)

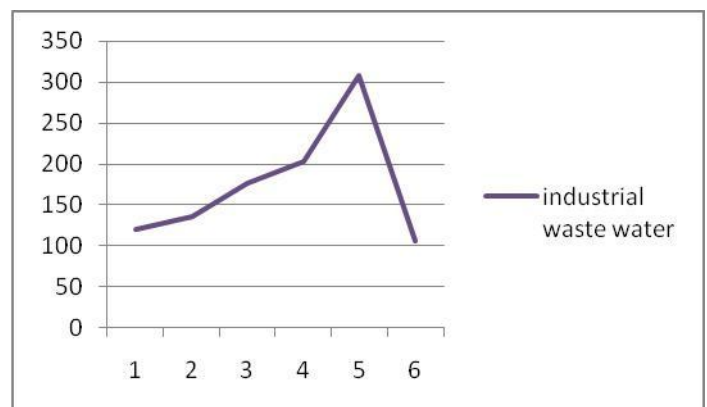


Fig 2(GRAPH FOR TRBIDITY TEST)

DISCUSSION:

We have gone through the BOD, COD, pH, & turbidity test for industrial waste water .It should be the result lower than the permissible result. Before adding poly aluminium chloride has we could its same producer for the same industrial waste water but we added poly aluminium chloride for the respective water it's should the small amount of different result which was lower than the perimeter limits. The turbidity test was by adding poly aluminium chloride was 1g, 2g, 3g ,4g ,5g ,6g respectively given result value was very high

Conclusion:**Sewage water:**

Tests which we are gone through have shown a good turbidity value the sewage water, aerial water, outlet water can we used for gardening purpose only. Because of the irrelevant values of BOD, COD, pH in respective water. Which cause of disuses to human.

Industrial waste water:

Tests which we are gone through have shown very bad turbidity value the industrial waste water & cant we used for gardening purpose and other purpose. Because of the irrelevant values of BOD, COD, pH in respective water. Which cause of disuses to human.. Soil fertility this very bad for our earth.

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