

EXPERIMENTAL TEST FOR PHYSICAL AND CHEMICAL PROPERTIES OF WASTE WATER

ROJA.P¹, SELVI.C², RADHA.K³, SIVASANKAR.J⁴, RANITHA.S.R⁵

BE-final year and Assistant Professor⁵

Department of CIVIL,

Bharathiyar Institute Of Engineering for women ,

Deviyakurichi (po), Attur(tk),

Salem(dt), Tamilnadu, India.

Rojapi97@gmail.com¹, jesiselvi11@gmail.com², radharam304@gmail.com³,

sankari92siva@gmail.com⁴, ranitha.rangasamy@gmail.com⁵

ABSTRACT

Waste water got from the milk company. Then, the test should be done in collected waste water. It can be classified into good water and waste water. If the tests are carried in both waters. Physical and chemical properties of water is tested. We are referred some international journals in our project. It clarifies, the recycled water is used to agricultural and construction purpose.

INTRODUCTION

The milk processing unit use “clean in place” (CIP) system which pumps cleaning solutions through all equipment in this order water rinse caustic solution (NaOH)₂ wash, water rinse, acid solution (HNO₃) wash, water rinse, and sodium hypo-chlorite disinfectant. These chemicals eventually become a part of waste water. Large amount of water is used to clean dairy processing plants hence; the resulting waste water can contain detergent, sanitizers, base, salts and organic matter, depending upon source. (Floor spills regular equipment cleaning). Waste water volume and strength fluctuated widely from day to day due to partly differences in

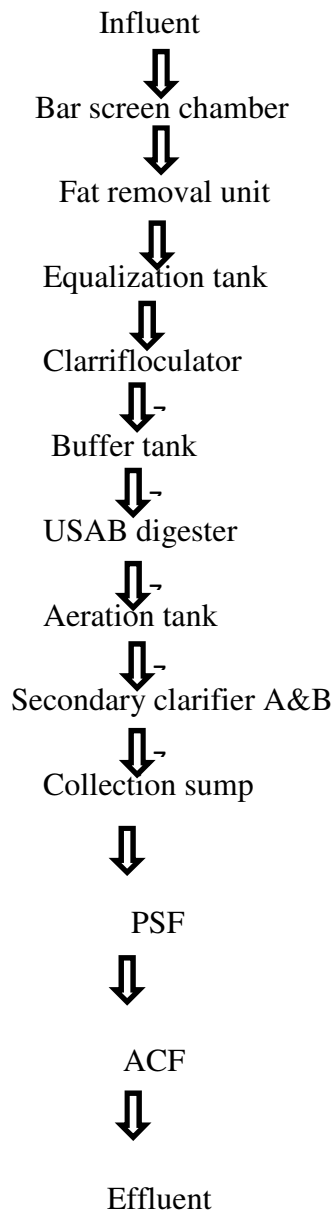
production, therefore, data of effluent or waste water volume per unit of product processed (liters waste water/kg product), waste water concentration (mg/liter) and weight of waste generated per unit of product processed (g waste/kg product) also changes. Climate of the area and production of the dairy plant are two major reasons, responsible for changing waste water character.

The annual cost of treatment and disposal for the typical plant appears to be in the order of a million dollars as a whole is many millions of dollars.

OBJECTIVES

- To conduct physical and chemical test for waste water.
- To transfer waste water, electrical power and machines are required.
- To decrease the BOD (biochemical oxygen Demand), COD (chemical oxygen demand), bacteria which is harmful to people and inorganic salts in waste water more efficiently than the other treatment methods.

PROCESS FLOW DIAGRAM



- □ Colour
- □ Hydrogen Ion Concentration (Ph)
- Turbidity
- Salinity
- Electrical conductivity
- Total Dissolved Solids (TDS)

□ □

b) Chemical methods

- Total Hardness
- □ Calcium
- Magnesium
- Alkalinity
- Chloride
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Dissolved Oxygen (DO)
- Protein

PARAMETERS	UNTREATED	TREATED
Colour	White	Brown
Temperature	26	21
Ph	6.6	7
Alkalinity	280	158
Chloride	38.00	33.5
Hardness	240	215
BOD	1100	700
COD	2216	998
DO	1.3	0.42

LABORATORY TEST

The waste water samples are analyses by

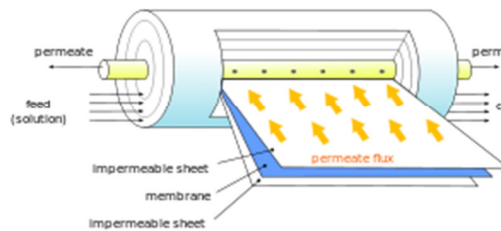
a) Physical methods

- Temperature

MEMBRANE FILTER

- Membrane Filtration is a technique which is used to separate particles from a liquid for the purpose of purifying it.

- Nano filtration, Ultra filtration, Microfiltration and Reverse osmosis are all membrane filtration techniques.
- Many membrane filtration systems are designed for industrial uses. One of the big advantages to such a system is that it does not require the uses of chemical.



USAGE OF FILTRATION

Currently the infiltration technique is applied with the advanced technology of membrane filtration to remove effluents from the dairy waste water.

- It enables the utilization of natural available material such as pebbles, sand and soil to get purified water instead of using chemicals to obtain.
- It will help to increase the availability of water.
- Thus, it can reduce the burden of environmental problems.
- Currently, the industries are facing the problems arising due to the high pollutants concentration.

MEMBRANE OPERATIONS

- Microfiltration
- Ultra filtration
- Nanofiltration
- Reverse osmosis

NANOFILTRATION

Nano filtration membranes have pore sizes from 1-10 nanometers, smaller than that used in microfiltration and ultra filtration, but just larger than that in reverse osmosis.

REVERSE OSMOSIS

- Reverse Osmosis is a technology that is used to remove a large majority of contaminants from water by pushing the water under pressure through a semi-permeable membrane.

CONCLUSION

- Many dairy industries use membrane filter method for waste water treatment at their site itself.
- They also use of trickling filter and electrochemical.
- The use of recycled is better when compared to natural water because the recycled contain more protein, nutrient which are present in milk products.
- So it is also advisable to use recycled water which contains essential and natural nutrients for crops to increase productivity of the crops

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