

Top Glove, Top Quality, Top Efficiency,
Good Health, Safety First & Be Honest.

PROCESS DESCRIPTION

A. PRE-TREATMENT

1. Wastewater from all production lines shall be drained into a series of solids trap & screened before overflowing into a raw effluent Collection Pit/ Equalization Tank/ Rubber Recovery Tank.
2. The purpose of the Equalizing Tank is to equalize the flow, pH and other contaminant. During this time fluctuations in quantity and quality of the effluent would be homogenized or balanced so that an averaging effect is achieved before effluent is pumped into the rest of the treatment system.

Note: Treatment of industries waste started with Equalizing Tank acts as reservoir to the fluctuation of the influent: it will equalize the flow, chemical content, pH and temperature of the incoming wastewater. Without an Equalizing Tank the treatment system will overload when the discharge volume, or concentration of the discharge is inconsistent. This will affect the overflow of the treatment system.

B. CHEMICAL TREATMENT

1. From Equalizing Tank, waste water shall be pumped into Chemical Mixing Tank located at higher level.
2. At Chemical Mixing Tank, coagulation process starts when coagulant chemical is added to precipitate out the suspended solid and other colloids (which include hydroxide of heavy metal) to become fine floc. Simultaneously, Caustic Soda is added automatically with pH controlled system to adjust the pH value between pH 7 to pH 8.
3. After the above process, it is followed by flocculation process whereby polymer is added to further agglomerate the fine floc. By doing so it will increase the sludge density and improve settling and compactness of the settled sludge.
4. The floc has higher density than water. Floc is removed from the water by gravity settling in the Primary Clarifier Tank.
5. Settled floc / sludge is pumped periodically from bottom of the Primary Clarifier into the Sludge Holding Tank.

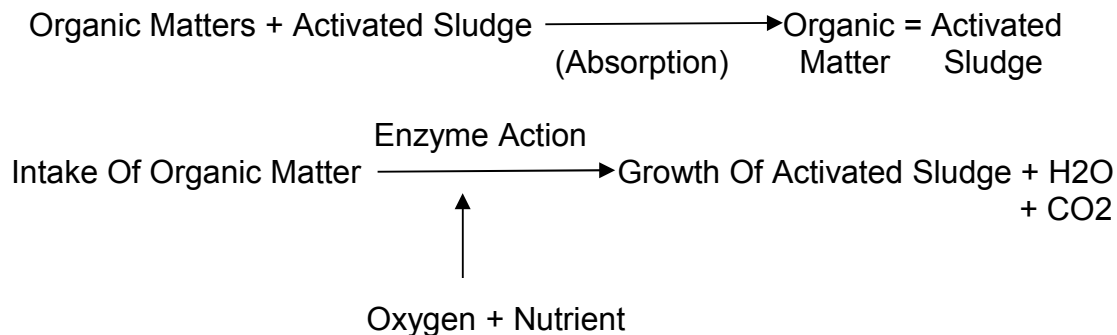
Prepared by: Mandy Lim
Checked/ Verified by: Mr. Loh KK
Last Updated: 14/4/11

Top Glove, Top Quality, Top Efficiency,
Good Health, Safety First & Be Honest.

6. The supernatant from the Primary Clarifier Tank overflows into the Aeration Tank No.1 and then Aeration Tank No. 2 for biological treatment.

C. BIOLOGICAL TREATMENT

1. Activated sludge is a colony of mixed aerobic microbes, namely bacteria, protozoa, mold, yeast, algae, etc. The Activated Sludge method is a water purification process using the life activity of the activated sludge. In other words, the activated sludge added into waste water absorbs and takes in organic matters contained in the waste water. In this way, organic matters are removed out of system in the way of assimilation.



2. As shown from above, it is very important to acclimate bacteria which provides most suitable enzyme to decompose organic matters in waste water. Enzyme function is controlled by water temperature, pH, organic matter concentration, heavy matter ions. Well-balanced nutrients are important for microbes to grow in waste water.
3. In Aeration Tank, microorganisms use the organic in waste water as a food supply and convert them into biological cells or biomass or mixed culture is required for complete treatment. Each type of organism in the mixed culture utilizes the food sources most suitable to its metabolism.
4. Air is supplied into both Aeration Tanks using air blowers.
5. Treated water from Aeration Tank will then be pumped to Secondary Clarifier Tank for settling of Activated Sludge and the final treated effluent which complies to DOE Standard B will overflow to the public drain for discharge and the volume (flow rate) will be read by flow meter.
6. Settled Activated Sludge is pumped periodically from bottom of Secondary Clarifier into the Sludge Holding Tank and part of the Activated Sludge will be pumped into Aeration Tank when necessary.

Prepared by: Mandy Lim
Checked/ Verified by: Mr. Loh KK
Last Updated: 14/4/11

Top Glove, Top Quality, Top Efficiency,
Good Health, Safety First & Be Honest.

D. SLUDGE TREATMENT

1. Settled sludge in the Sludge Holding Tank is pumped periodically into the Filter Press for dewatering.
2. Sludge cake from Filter Press shall be kept in the factory premise as Scheduled Waste SW321.
3. Filtrate from Filter Press is returned to Equalizing Tank.

E. ACTIVATED CARBON FILTER

1. Carbon adsorption is used principally for the removal of refractory organic compounds, as well as residual amount of inorganic compound such as nitrogen, sulfides and heavy metals. Under normal conditions, after treatment with carbon, the effluent BOD ranges from 2 - 7 mg/l, and the effluent COD ranges from 10 – 20 mg/l.
2. After some time, Activated Carbon filter needs to be back-washed using JBA water.