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Section . A  
Subject wastewater

## Q1 Hydraulic Retention Time:

The HRT in wastewater treatment plant is a measure of an average length of time holding the wastewater in a tank. It is also known as hydraulic residence time.

The Wastewater treatment plant is mainly designed to handle the wastewater at normal load & also during shock loads. The wastewater is retained in different treatment units at a particular time to achieve the desired parameters.

The HRT followed in the  
Homogenization Tanks is 12 to 24 hours,  
24 to 48 hours in aeration tanks,  
72 to 120 days in Anaerobic Reactors  
5 to 12 hours in Secondary clarifiers,  
3 to 5 hours in primary clarifiers,  
30 minutes in chlorine contact tanks, 5 to 10 minutes in deep media filter etc.

For example if we assume the HRT is 5 days & the total volume of the reactor is 500 MLD then the per day influent feeding amount is 100 MLD.

## (2) Methods Used for decoupling SRT

⇒ The Solid Retention Time is the average time the activated sludge solid are in the system. The SRT is an important design & operating parameter for the activated sludge process & is usually expressed in days.

## (3) Advantages of decoupling SRT:-

Solid Retention Time is the amount it takes for solids to precipitate out of solution.

Obviously, if you throw a rock in a bucket, it sinks very quickly, thus having a near 0 SRT. Eventually they sink to the bottom or float to the top & are scraped up & wasted. How fast these particles fall out is Solid Retention Time.