

OBJECTIVES OF SLUDGE TREATMENT:

- To reduce the water content in the sludge and make it easier for treatment and disposal
- To destroy all the pathogens
- To reduce the volume of sludge
- To stabilize the organic matter

FORMS OF SLUDGE:

- Primary sludge – When raw sewage is settled in a primary clarifier, the suspended solids settle down by gravity. These are drawn out from the conical floor of the clarifier. This is called primary sludge (PS). It will have mostly organic substances and also inorganic substances. If it is stored, the organic substances will undergo anaerobic reaction as in Figure 5.2. This will result in production of Methane and Hydrogen Sulphide gases.
- Secondary sludge – When the sewage is aerated in aeration tanks, biological microorganisms grow and multiply. The aerated liquid is called the mixed liquor. It is settled in secondary clarifiers to separate the microorganisms by gravity. These are drawn out from the conical floor of the clarifier. This is called secondary sludge.
- Return sludge – A major portion of the secondary sludge is returned to the aeration tank for seeding the microorganisms. This is called return sludge (RS).
- Excess sludge – A small portion of secondary sludge is wasted. This is equal to secondary sludge minus return sludge. This is called excess sludge (ES) or waste sludge (WS).
- Chemical sludge – When raw sewage or secondary treated sewage is subjected to chemical precipitation, the resulting sludge is called chemical sludge (CS).