Biochemical Oxygen Demand (BOD)

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What is Biochemical Oxygen Demand (BOD)?

- BOD refers to the amount of oxygen consumed by bacteria and other microorganisms while they decompose organic matter under aerobic (oxygen is present) conditions at a specified temperature.
- In other words, BOD is the amount of dissolved oxygen used by microorganisms in the biological process of metabolizing organic matter in water

How BOD is helpful in measuring water pollution?

- The more organic matter there is (e.g., in sewage and polluted bodies of water), the greater the BOD; and the greater the BOD, the lower the amount of dissolved oxygen available for higher animals such as fishes. The BOD is therefore a reliable gauge of the organic pollution of a body of water.
- The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C and is often used as a surrogate of the degree of organic pollution of water.
- Its reduction is used as a gauge of the effectiveness of wastewater treatment plants.
- BOD of wastewater effluents is used to indicate the short-term impact on the oxygen levels of the receiving water.
- Moderately polluted rivers may have a BOD value in the range of 2 to 8 mg/L. Rivers may be considered severely polluted when BOD values exceed 8 mg/L.
- Municipal sewage that is efficiently treated by a three-stage process would have a value of about 20 mg/L or

less.

Source of BOD

Its sources include leaves and woody debris, dead plants and animals, animal manure, effluents from pulp and paper mills, wastewater treatment plants, feedlots, and food-processing plants, failing septic systems, and urban stormwater runoff.

Chemical Oxygen Demand (COD) & Biochemical Oxygen Demand (BOD)

BOD analysis is similar in function to chemical oxygen demand (COD) analysis, in that both measure the amount of organic compounds in water. However, COD analysis is less specific, since it measures everything that can be chemically oxidized, rather than just levels of biologically oxidized organic matter.