

D-46: Correlation between Biochemical Oxygen Demand and Chemical Oxygen Demand

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Biochemical Oxygen Demand (BOD) is an important parameter which assists us to judge the extent of pollution of a water body. However, the determination of BOD requires several days and thus hampers the monitoring programme on water quality. But the determination of the Chemical Oxygen Demand (COD) can be carried out within a few hours. COD is not dependent on the biochemical factors of the water body, a high precision of the results could be expected. It is therefore, fruitful to investigate whether there is any correlation between BOD and COD.

If such a correlation exists the BOD value can be evaluated simply by determining the value of COD.

Since BOD value is highly dependent on the microbiology of the water body, such correlation cannot be generalised. Preliminary studies were carried out using synthetic water samples possessing calculated COD values based on the amount of organic matter added. The existence of a significant correlation between BOD₃ and COD was observed with synthetic water samples containing glucose and phthalate. These 2 were selected based on the fact that glucose is easily degradable, whereas phthalate with aromatic ring is resistant to degradation. Correlation coefficient of the effluent of 2 different food processing industries was also obtained. Since the correlation exists between BOD₃ and COD, an estimate of the BOD₃ could be obtained within a few hours through the determination of COD.

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