

ENVIRONMENT/WATER ANALYSIS

Use of HettCube cooled incubators to determine the biochemical oxygen demand

The decomposition of organic material by micro-organisms is an important biochemical oxidation process in nature. The quantity of oxygen required is dependent on the mass of the substance decomposed.

— The five-day BOD (BOD_5) as an indicator in the analysis of wastewater

The relationship between oxygen demand and the quantity of organic substance decomposed is used in the analysis of wastewater. The BOD_5 of a wastewater sample is determined and the higher its value the greater the contamination of water with substances that can be biodegraded. The five-day BOD is used in most cases. This is the quantity of oxygen that is consumed by micro-organisms upon aerobic decomposition of organic substances over a period of 5 days under controlled conditions.

— Methods of determination

Different methods are used to establish the biochemical oxygen demand. They include self-monitoring methods and the methods given in international standards such as ISO 5815-1 and ISO 5815-2.

The BOD_5 is determined in the field for various purposes, for example

- Process monitoring and design within wastewater treatment plants
- Monitoring of the organic composition of wastewater discharges, e.g. from cider press houses
- Testing of surface waters by the environmental authorities
- Calculation of the fees to be paid by industrial companies and operators of wastewater treatment plants

Incubation conditions

Temperature	Duration
20 ± 1 °C	5 days

— Advantages of HettCube incubators

- Maximal validated usable space on a small footprint
- 4.3 inch touch display for intuitive operation
- Very homogeneous and stable temperature, as well as precise temperature control
- True "one-hand-operation" and flexible positioning of the shelves
- Minimal energy consumption of < 0.06 kW/h at 37 °C



Fig. 1: Final clarifier of a sewage clarification plant ¹⁾



Fig. 2: Karlsruher bottles, preferably used when testing according to the international standard ISO 5815-1 (dilution method). ²⁾

¹⁾ Image by courtesy of the municipality of Tuttlingen

²⁾ Image by courtesy of the Windaus Labortechnik GmbH & Co. KG

Hettich solution

Model	Cat. No.
HettCube 200	62000
HettCube 400	64000
HettCube 600	66000

Model without IVD	Cat. No.
HettCube 200	62001
HettCube 400	64001
HettCube 600	66001