



## TECHNICAL DATASHEET

# Biochemical Oxygen Demand

## Biochemical Oxygen Demand - Waste water

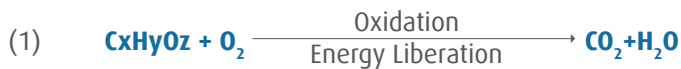
### BACKGROUND

Biochemical Oxygen Demand (BOD) is defined as the mass of dissolved oxygen required by a specific volume of liquid for the process of biochemical oxidation over a 5-day period at 20°C in the dark. The result is expressed as milligrams of oxygen per litre of sample.

The significance of BOD lies in the fact that a crude sewage or poorly oxygenated sewage effluent entering a stream will remove the oxygen dissolved therein and so destroy plant and fish life. The later stages of sewage purification aim at lessening the BOD by oxidising the sewage to the fullest extent (THRESH, BEALE and Suckling, 1958).

Allyl thiourea (ATU) may be added to suppress nitrification during the course of the test. In this case, the result is referred to as BOD (ATU). If the period of incubation is other than the standard 5 days this is indicated by a suffix denoting the period in days e.g. BOD20.

Biochemical oxidation of organic matter is primarily brought about by the action of heterotrophic bacteria (bacteria which use the organic matter present to produce energy and for growth). These processes can be shown by the simplified equations:



The first phase of biochemical oxidation results in cell growth by depletion of the available organic matter. This is followed by a slower oxygen uptake known as endogenous respiration. During this, the cells produce energy by self-oxidation. This process can be shown by the simplified equation:



### ANALYSIS

Samples are stable for two days (EPA-600/4-79-020) from the point of sampling with no preservative being required. Samples requiring settled or filtered BOD are pre-treated prior to incubation.

### Reference:

- THRESH, J., BEALE, J. and Suckling, E. (1958). The Examination of Waters and Water Supplies. By J.C. Thresh ... John Foster Beale ... and Ernest Victor Suckling ... Seventh edition [of the work by J.C. Thresh]. Pp.153. J. & A. Churchill: London.
- 5 Day Biochemical Oxygen Demand (BOD5), Second Edition 1988 (with amendments to Dissolved Oxygen in Waters). HMSO, Methods for the Examination of Waters and Associated Materials ISBN 0117522120.



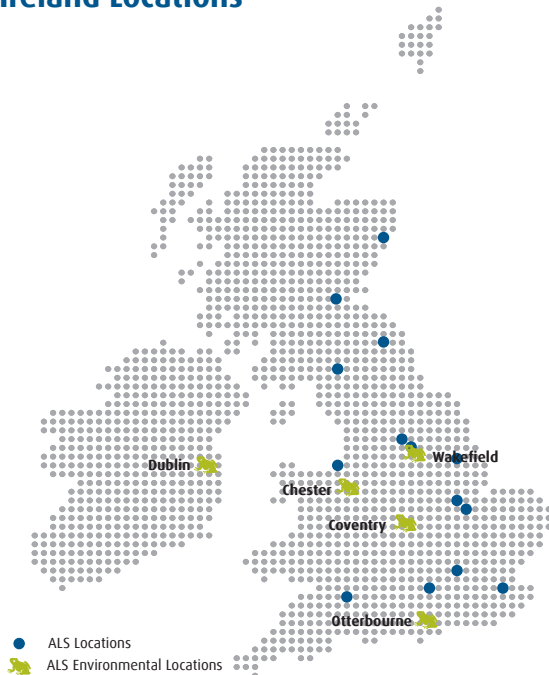
**ALS Environmental Limited**

T +44 (0)24 7642 1213  
F +44 (0)24 7685 6575  
E [info.ukenviro@alsglobal.com](mailto:info.ukenviro@alsglobal.com)  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)



# ALS Service Overview

## UK and Ireland Locations



## Quality

Providing customers with UKAS ISO 17025:2005, MCERTS and DWTS accredited data from our laboratories across the UK. We participate in a broad range of Proficiency Testing schemes and hold a DEFRA import licence for soils.

## Did you know that?

We are able to provide a broad range of additional services to help with your sampling including:

- Internal refrigerated and tracked courier network
- National portfolio of drop-off locations
- Pre-Registration of samples via our "Pre-Reg" system
- Dedicated customer service advisor
- Online reporting via our WebTrieve system

## Contaminated Land

We understand the time pressures of large scale Remediation and Brownfield projects and are a member of the AGS. Our Coventry laboratory utilises state of the art analytical equipment with the back-up of our sister laboratories across Europe to ensure that we deliver your projects on time every time.

## Waste Management

By working closely with some of the largest companies in this sector we are able to offer unrivalled analytical and administration services to ensure that your samples are processed swiftly and in line with the UKAS Deviating Sample Guidance.

## Legionella and Microbiology

Being members of the Legionella Control Association (LCA) we understand the emphasis placed on laboratory analysis for the Control of Legionella. With 3 methods for testing Legionella (including rapid PCR) and an understanding and appreciation the implications of ACoP L8, HSG 274 and HTM04-01 we are your ideal analytical partner for all of your water hygiene monitoring requirements.

## Drinking Water

We are one of only a handful of commercial laboratories to have a dedicated Drinking Water Testing Specification (DWTS) accredited laboratory, based in Wakefield, Yorkshire. We are able to supply analysis to the Public and Private Drinking Water Regulations.



## ALS Environmental Limited

T +44 (0)24 7642 1213  
F +44 (0)24 7685 6575  
E [info.ukenviro@alsglobal.com](mailto:info.ukenviro@alsglobal.com)  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)