



## TECHNICAL DATASHEET

# Chemical Oxygen Demand

## Chemical Oxygen Demand - Waste water

### BACKGROUND

The Chemical Oxygen Demand (COD) test is an empirical test that is a measure of the potential oxygen consumption of waste waters. The COD test has been used for a very long time as one of the components of the method that water utilities use to charge dischargers for their part of the effluent that enters a waste water treatment works via the Mogden Formula. This was also recognised in the Urban Waste Water Directive (91/276/EEC), in which COD is used as a limiting substance, with a limiting value of 125mg/l.

### ANALYSIS

For the analysis of COD, samples are oxidised by heating the water in vials. Samples are oxidised by heating in vials with sulphuric acid and potassium dichromate. Mercuric sulphate is added to suppress chloride interference. The dichromate is reduced to chromate during the digestion and the chromate produced is measured colorimetrically.

#### Sample Oxidation/Dichromate Reduction



#### Chloride removal by Mercuric Sulphate



#### Chloride Interference



There is no sample preservative used. Samples should be analysed as soon after receipt as possible.

Samples requiring settled COD should be allowed to settle for a minimum of 1 hour and not more than 1 hour 30 minutes. Samples requiring filtered COD are filtered through a Whatman 0.45µm filter.

Samples requiring pH7 COD are adjusted to pH7±0.5, using 10% H<sub>2</sub>SO<sub>4</sub> and 1M NaOH and allowed to settle for a minimum of one hour. Samples are stable for 6 days (In-House Data) from sampling.

If not suppressed, chloride will cause positive interference. Inorganic reducing agents such as nitrites, sulphites and ferrous salts will contribute to the COD. Oxidising agents, e.g. Cr VI salts, can give false negative and low results. Bromide interference will not be controlled by mercuric sulphate.



### Reference:

Chemical Oxygen Demand (Dichromate Value) of Polluted and Waste Waters 1986 (Second Edition). HMSO Methods for the Examination of Waters and Associated Materials. Method B. ISBN: 011 7519154.



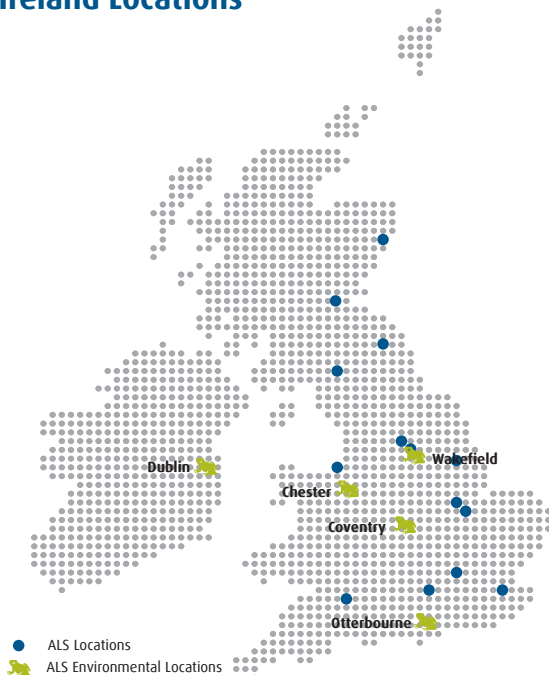
### ALS Environmental Limited

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# 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.

## 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.

## 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.

## 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.



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