



TECHNICAL DATASHEET

# Asbestos fibres in air

## Asbestor fibres in air - Air monitoring

### BACKGROUND

At some waste facilities, e.g. landfill sites, particulate matter in the form of fibres may be encountered. This includes materials such as asbestos and man-made mineral fibres (MMMFs). Asbestos waste must be deposited in a landfill for hazardous waste, a site designed to accept asbestos only or in a separate cell in a landfill for non-hazardous waste, but only if the cell is sufficiently self-contained and the design provides a physical separation and isolates the asbestos so that it remains undisturbed.

The epidemiological risk implications of fibres are due, in part, to their long, thin structure (aspect ratio). For asbestos fibres, their propensity to break down into ever finer, sharp fibres causes an even greater risk to Human Health. The main health impacts from asbestos are from exposure that has occurred at work, rather than from non-occupational exposure. Workplace exposure to asbestos kills more people than any other single work-related illness. The diseases can take from 15-60 years to develop – so the person who has breathed in the fibres will not immediately aware of any change in their health. Asbestos can cause two main types of disease in humans: asbestosis (scarring of lung tissue) and cancer (particularly lung cancer and mesothelioma). MMMFs can in some circumstances cause irritation of the skin and eyes and upper respiratory tract.

Manual sampling of fibres is undertaken in much the same way as for many other particulates, using air-sampling pumps and filters. ALS' Fibre Counting in Air method can be used to identify and quantify the fibres that have been collected.

### IN ADDITION WE OFFER THE FOLLOWING ACCREDITED ANALYSIS

- PM10
- Dust deposition rate
- Inhalable dust



### ANALYSIS

The method determines the airborne concentration of countable fibres using phase contrast microscopy (PCM). Countable fibres are defined as particles with a length  $>5\mu\text{m}$ , width  $<3\mu\text{m}$  and an aspect ratio (length: width ratio)  $>3:1$ . Fibres having widths of  $<0.2\mu\text{m}$  may not be visible using this method and the PCM count represents only a proportion of the total number of fibres present. Therefore, the count is only an index of the numerical concentration of fibres and not an absolute measure of the number of fibres present. The method does not permit the determination of the crystallographic structure of fibres and therefore cannot be used on its own to distinguish between different fibre types, hence use of this method requires all fibres that fit the above criteria be counted.

This method cannot and does not identify the fibre type.

A measured volume of air is drawn through a membrane filter, which is subsequently mounted on a microscope slide and rendered transparent. Fibres on a measured area of filter are counted using phase contrast microscopy with Köhler illumination thus giving a number concentration of fibres per unit volume of air.

### References:

- LAB 30 - Application of ISO/IEC 17025 for Asbestos Sampling and Testing
- HSG 248 – The Analysts Guide for Sampling, Analysis and Clearance Procedures
- Control of Asbestos Regulations 2012. ISBN 9780 111 521083

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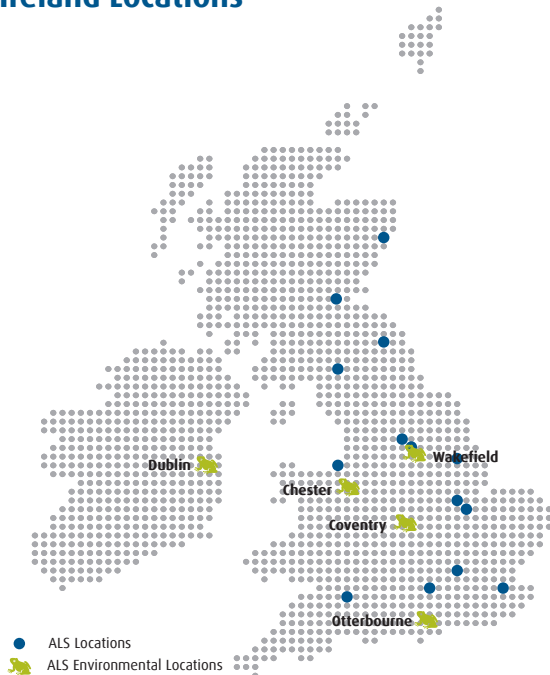
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# ALS Service Overview

## 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.

## 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.



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