



Environmental Science



## i2 Asbestos

Asbestos found in soil can potentially pose a significant risk and should be professionally managed as part of the site development process. Now there is greater concern and awareness of the risks associated with asbestos fibres in soil and as such identifying the nature and type of asbestos is critical to assessing the risk and forming its appropriate control. Following the UKAS directive UKASASB001 published in April 2011, all laboratories within the contaminated land sector must issue results as accredited to ISO 17025. There are a number of analytical techniques used to determine asbestos in soils, these include:

### Asbestos containing materials (ACMs) screening/ identification in soil

All samples are firstly logged onto the laboratory information management system (LIMS) and are then scheduled for analysis. Samples are screened by qualified personnel under controlled conditions, when suspect ACM is found it is removed. The suspect ACM is mounted onto slides with refractive index liquids and observed under Polarising Light Microscopy (PLM). The detection/non detection and asbestos type within the sample matrix are reported. Depending on the amounts of ACM found within the sample a risk assessment is made as to whether the sample is suitable for routine chemical analysis.

### Asbestos identification within bulk samples

The bulk ACM is examined under stereo microscopy where fibres are mounted onto slides in refractive index liquids and observed under Polarising Light Microscopy (PLM). Results are reported as none detected or detected and if present the types are included.

### Asbestos Quantification

If quantification of the asbestos in a soil is required, the screened sample containing fibres is either analysed by hand picking and weighing (also known as stage 2 analysis or gravimetric) or by fibre counting (stage 3, Phase Contrast Microscopy, PCM).

Where the asbestos material and fibres can be removed and weighed on an analytical balance, the % asbestos content of the submitted sample can be determined gravimetrically, adjusted where necessary for the matrix where the material is not loose fibres (pure asbestos).

Where this cannot be carried out, an aliquot of the fines is suspended in water and thoroughly mixed. The asbestos fibres float on the top and are removed by pipette, filtered and then mounted on a slide. The slide is then examined using PCM. The fibres are counted, based on the method criteria and measured to determine their volume. The mass estimated is based on the material density. Both techniques have a reporting limit of < 0.001 %.

For further information regarding asbestos in soil or any general queries regarding asbestos please contact: [reception@i2analytical.com](mailto:reception@i2analytical.com)