Method Summary

Identification of Asbestos in Soils, Ballasts, Aggregates and Bulk Materials

Scope and Range

This method will be used to determine the presence of the six regulated asbestos types: Chrysotile, Amosite, Crocidolite, Asbestos Anthophyllite, Asbestos Actinolite and Asbestos Tremolite in soil samples and a variety of bulk materials. The bulk samples include, but are not limited to, cement, insulation board, insulation material, woven materials, bituminous materials and others.

As this is a qualitative, not a quantitative test, no indication of the amount of asbestos in the material will be reported except where only one or two fibres are found after careful searching of the sample, when the result will be reported as 'Trace'.

All analysts performing this method will be P401 qualified

This method is accredited for Soils, Ballasts, Aggregates and Bulk Materials.

References

HSG 264: Asbestos: The survey guide (Second edition, published 2012).
HSG 248: Asbestos: The analysts' guide (Second edition, published 2021).
LAB-30 Edition 5 July 2022 Application of ISO IEC 17025 for Asbestos Sampling and Testing

Principle

Preparation:
Soil, ballast and aggregate samples will be prepared for analysis by homogenising the sample before taking an aliquot of approximately 100g and drying the sample.
The dried sample will them be examined under low powered magnification by stereo microscope (10 – 40x magnification).
Any suspect fibres will be removed and mounted in the appropriate refractive index liquid.

The bulk samples will be examined visually and under low powered magnification by stereo microscope (10x to 40x magnification) to determine fibre content.
Other preparation may be necessary to release fibres from the matrix such as breaking the sample or using an acid wash to dissolve the matrix.
Once the fibres have been released they will be mounted in the appropriate refractive index liquid determined by examining the fibres characteristics.
Samples are examined for a minimum of 10 minutes before a result of No Asbestos Detected (NAD) can be reported.

To ensure confidence in a result of 'No Asbestos Detected' for all asbestos types, two dust/pinch samples are taken and mounted in a refractive index liquid and analysed using the polarised light microscope.

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Analysis:
Analysis of all fibres will be carried out using a polarised light microscope with a dispersion-staining objective.
By making all the observations listed in HSG 248 we will be able to determine which fibre type is present in the material.

Reporting:
The report will include information on which asbestos types have been detected (if any) in the sample, together with information on who analysed the sample, the date it was analysed and any pertinent comments made by the analyst.
For soil samples the comment will state whether loose fibres and/or ACM were present in the sample.
If a result of 'Trace' is reported, this means that only 1-2 fibres were found after carefully searching through the evaluation of the two dust slides that are prepared when no fibres are found during the low powered microscope search.
These slides are prepared by talking a small amount of the soil and mounting them in a refractive index before searching through them using the polarised light microscope.

For bulk samples any comments will indicate the most likely identity of the material that has been examined but as these comments are the analyst's opinions, further testing of the material should be carried out to confirm the identity of the material type.

More information on the analysis of asbestos fibres can be found in HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures.
Information on ACM's and their asbestos content can be found in HSG 264; The survey guide.
Both guides can be found on the HSE website as free to download documents or available to purchase as hard copies from the HSE bookshop.

Interferences

Certain non-asbestos fibres and minerals can cause interference with the identification of asbestos. These include, but are not limited to, cobwebs, feathers, fibrous brucite (Nemalite) and fibrous wollastonite. However, a qualified analyst should be able to determine the difference between these and asbestos fibres. More information can be found in HSG 248.