Chemical Testing ISO/IEC 17025 Application Document

Annex A: Asbestos identification in bulk samples

May 2014

Chemical Testing Annex A: Asbestos identification in bulk samples

This document provides additional interpretative criteria and recommendations for the application of ISO/IEC 17025 in the field of Chemical Testing for both applicant and accredited facilities conducting the identification of asbestos in bulk samples.

Applicant and accredited facilities must also comply with the ISO/IEC 17025 standard and Chemical Testing field application documents and any field annexes, policies and/or technical circulars (refer to NATA Procedures for Accreditation).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

4.13 Control of records

4.13.2 Technical records

4.13.2.1 General

Records must include all raw data and observations, so that the conclusions as to the identification can be checked.

5.2 Personnel

Facilities must document a policy and procedure for the approval of appropriate staff authorised to perform asbestos identification. NATA will take a sampling approach to review the competency of asbestos identifiers at assessments.

5.2.1 Asbestos identifiers

NATA will no longer formally recognise staff as approved identifiers in the field of Chemical Testing unless a requirement exists under a regulatory framework or is covered by a Deed of Agreement, Memorandum of Understanding or other binding agreement with a third party. This decision effectively shifts the responsibility of asbestos identifier approval from NATA to the facility management.

The facility must maintain a list of staff authorised as asbestos identifiers.

Where regulatory frameworks exist facilities may request the addition of asbestos identifiers to their scope of accreditation as long as they provide the policy and procedure for approval of asbestos identifiers (if not already reviewed by NATA) and the records showing how the competencies were met.

Evidence of competency can include but is not limited to:

- Records of the approval of staff to identify asbestos including an evaluation of the knowledge of the testing undertaken and the theory upon which this testing is based;
- Results of participation in the facility's quality control program;
- Participation in external proficiency programs.

The facility must have a system in place for evaluating and monitoring the continued competency of asbestos identifiers. The system must include the activities for refresher training to be undertaken by staff who have been absent for extended periods, for example 3 months or greater. Such activities may include participation in an internal quality assurance (QA) program and external proficiency testing.

These evaluations must be undertaken by another competent person.

Person approved to authorise results

A person approved to release results must be an asbestos identifier or where they hold a more senior position at the facility they must be able to demonstrate extensive experience in identification and be familiar with the day to day operations of the facility.

5.3 Accommodation and environmental conditions

5.3.1 Field sites

To qualify as a field site an operation must satisfy the following three criteria:

a) It must be established to service one specific project with a finite period of no more than 18 months, not several non-specific ones.

b) It must be on the site of (or in very close proximity to) the project it is servicing.

c) It must be staffed by asbestos identifiers who work out of the base facility.

If the operation does not meet all of these criteria, a separate accreditation must be obtained.

Each facility must have documented procedures to be applied when setting up a field site.

Field sites must be established under the supervision of a person from the base site with approval to release results. Staff from the base site must visit the field site at least once per week if they are not located at the field site for the duration of its operation. Records sufficiently detailed to identify what activities were undertaken must be kept of these visits.

NATA must be notified in writing of any field site that operates for longer than two months. NATA reserves the right to assess any long term field site, either as part of the assessment of the base facility or as a separate exercise.

5.3.4 Access to field sites

Special precautions may need to be taken at field sites to define and control access.

5.4 Test and calibration methods and method validation

5.4.2 Selection of methods

The test method used must be able to:

1. differentiate between asbestos fibres and the non-fibrous parent mineral;
2. apply for the analysis of both homogenous and heterogeneous matter;
3. unequivocally identify chrysotile, amosite and crocidolite asbestos;
4. determine the presence of synthetic mineral fibres (SMF) and organic fibres;
5. contain the limits of detection, which have been established as part of method validation.

If accreditation is sought for the identification of anthophyllite, actinolite and tremolite asbestos, a fully validated method including limits of detection must be available.

Note: AS 4964 – *Method for the qualitative identification of asbestos in bulk samples* does not support the analysis of tremolite, actinolite and anthophyllite.

If a facility does not want to develop its own test method, a suitable method that conforms to the principles described above and, that uses polarised light microscopy with dispersion staining is given in AS 4964. If AS 4964 is adopted by a facility, then it must have a supporting work instruction/procedure to ensure consistent application of the Standard. This supporting documentation is to include appropriate definitions of SMF and organic fibres.

The methodology of AS 4964 is based on an implicit, mandatory requirement for non-asbestos and non-mineral fibres such as SMF and organic fibres, if present, to be analysed and identified. Without this, the method is invalid when these types of fibres are present and not able to be formally identified, as is the case for laboratories not accredited for this aspect of the analysis.

Therefore, it is a NATA requirement that all laboratories accredited for asbestos identification must analyse and report the presence of SMF and organic fibres when present. In order to gain accreditation, the method must include a definition of these materials and the criteria to be applied for identification of these fibres. It should be noted that SMF and organic materials should only be

described in generic terms. This means that the specific types of SMF and organic fibres such as glass fibres, ceramic fibres, wool fibres, cotton fibres and so on, are not to be analysed or reported.

An adequate definition of SMF is any fibre exhibiting isotropic optical characteristics. This group includes glass fibres, glass wool, rock wool, slag wool, ceramic fibres, and 'bio-soluble' fibres of all types now being produced by most SMF manufacturers.

Organic fibres can be defined as fibres which ash at approximately 400±30^{0}C. These include natural organic fibres such as cellulose, hemp, cotton, flax, jute and wool; man-made organic fibres such as polypropylene, polyester, nylon, kevlar and acrylics.

5.5 Equipment

5.5.2 Common equipment Checks

a. Calibration of equipment for asbestos identification

Facilities are responsible for establishing their own equipment assurance program. This is to ensure that all equipment used satisfies the need to produce consistent results. Where such a program is not established, then the requirements for calibrations and checks are as detailed in the following table.

Item of equipment	Maximum period between successive calibrations (years)	Maximum period between checks (months)	Procedures and comments
Furnaces	Initial		
		12	Check variation within the working zone at the working temperature. AS 2853.
		On use	Monitor temperature with the appropriate sensor.
Microscope	Yearly service		Details at end of table.
		Regular cleaning	The microscope, lenses and objectives must be kept clean.
Refractive Index Oils		12	If high grade proprietary oils to be used.
		3	If chemical blends are mixed by facility.

b. Servicing of microscopes

The correct functioning and operation of microscopes must be assured. This may be achieved through annual servicing and undertaking the activities outlined below.

i. Polarising light microscopes

- Check, lubricate (as necessary) and adjust all mechanical moving parts, such as condenser rack, stage controls and field diaphragm.
- Check all optical alignments such as oculars, objectives, binocular tube, condenser and illumination system for surface and mount defects.
- Clean all optical components as necessary.
- Check for vertical, horizontal and rotational displacement of images in binocular tube.
- Check directions of polariser, analyser and accessory plate.
- Check correct operation of iris diaphragm in relation to dispersion staining.

ii. Stereo microscopes

- Check, lubricate (as necessary) and adjust all mechanical moving parts, such as focusing rack and zoom controls.
- Check all optical alignments such as oculars, binocular tube, objective and illumination system for surface and mount defects.
- Clean all optical components as necessary.
- Check and adjusting for parfocal operation throughout zoom range.

5.5.5 Field site equipment

Records must be kept of the location of each microscope used outside the base facility, and the dates on which it was at each site.

All microscopes used in field sites must be available for inspection during assessments of the base facility.

5.7 Sampling

5.7.1 Sample collection and preparation

When the facility is responsible for sample collection, the sample must be representative of the larger bulk material, including a full cross section. As complete a sample history as possible must be recorded.

In general, a facility should not sub-sample because of the high probability that small amounts of asbestos materials may be unintentionally omitted due to the sampling process.

Validated methods must be used where subsampling is performed on homogeneous or non homogeneous samples. These subsampling methods must be documented and referenced on test reports where relevant. Where sub sampling has been conducted, an appropriate qualifying statement is to be included in the test report, warning customers of the potential for invalid results.

5.9 Assuring the quality of test and calibration results

An adequate quality control program must be in place and include the use of samples covering the three asbestos types, synthetic mineral fibres and organic fibres. This program must cover all identifiers, including those involved in any field laboratories.

Facilities must participate in a proficiency testing program for asbestos fibre identification. A program must be established to ensure that all asbestos identifiers participate in the proficiency program over a defined period.

Where unsatisfactory results are returned the facility must investigate and identify the cause(s) of this and establish a corrective action.

5.10 Reporting the results

5.10.1 General

Reports must specify the type(s) of asbestos detected, viz. amosite, chrysotile, crocidolite.

Reported details of sample history, including size and/or weight and position in relation to the area from which it was taken, when known, must be such as to provide sufficient information to ensure that results can be correctly interpreted.

If identification is not possible due to adhering resins or cements or because of degradation of the fibres, an explanatory note to that effect must be included on the report.

Quantitative estimates cannot be included on reports.

Facilities must have prepared the slides used to obtain the results included in reports.

Authorisation of reports, including preliminary reports, must include the name of the identifier and the name of the person authorised to release results.

5.10.2 (e) The method used must be included on test reports. Unless it is an in-house validated method (see 5.4.2 above), the method stated must be AS

4964, and any supplementary work instruction used must also be reported to ensure consistent application of AS 4694.

References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

Standards

AS 2853 *Enclosures-Temperature controlled-Performance testing and grading*

AS 4964 *Method for the qualitative identification of asbestos in bulk samples*

AMENDMENTS

The table below provides a summary of changes made to the document with this issue.

Section	Clause	Amendment
Approved identifiers	5.2.1	Facilities must document a policy and procedure for the approval of appropriate staff to perform asbestos identification. The facility must maintain a list of staff authorised as asbestos identifiers. The facility must have in place a system for monitoring the continued competency of asbestos identifiers. The system must include the activities for refresher training to be undertaken by staff who have been absent for extended periods. A person approved to release results must be an asbestos identifier or where they hold a more senior position at the facility they must be able to demonstrate extensive experience in identification and be familiar with the day to day operations of the facility.
Field sites	5.3.1	a) It must be established to service one specific project with a finite period of no more than 18 months. Discontinuation of the need to seek accreditation for field sites.

Selection of methods	5.4.2	Removed reference to NATA Technical Note 17 as this is specified in the Chemical Testing ISO/IEC 17025 Application Document.
Common equipment checks	5.5.2 a. and b.	Included paragraph that calibration intervals are guidelines only. Removed equipment not relevant to asbestos identification.
Assuring the quality of test and calibration results	5.9	Requirement for facilities to develop their own proficiency and internal quality control program.
Reporting the results	5.10.1	Deletion of reference to SMF and OF. This is included under section 5.4.2.