

PROFICIENCY MODULE SYLLABUS

P404: AIR SAMPLING AND CLEARANCE TESTING OF ASBESTOS

AIM: This module provides theoretical and practical knowledge in the techniques of air sampling and clearance testing of Asbestos.

The module is at a proficiency level which must aim to provide the student with the practical knowledge and skills to be able to carry out the stated work.

The analysis of membrane filter samples by phase contrast microscopy is covered by module P403. In conjunction with P403 Asbestos Fibre Counting (PCM), this will cover the requirements of the '4-Stage Clearance procedure'.

CONTENT:

	TOPIC	TIME ALLOCATION
1.	REGULATIONS	10%
2.	CONTROL OF ASBESTOS EMISSIONS	10%
3.	AIR SAMPLING FOR ASBESTOS	20%
4.	ENCLOSURE AND CLEARANCE AIR MONITORING	20%
5.	PRACTICAL WORK	40%

Note: Reference is made in this syllabus to HSE guidance or other documentation. This may not be the most up-to-date relevant publications from HSE/other sources and is intended as guidance for candidates only.

1. REGULATIONS (10%)

Outline the full range of health effects of asbestos ranging from the benign (pleural plaques) to the terminal (mesothelioma) in the light of results from epidemiological studies carried out on asbestos workers. Review influential publications. Cover dose-response relationships, the effects of smoking whilst working with asbestos and the risks to health from low level exposure.

Outline the relevant HSE regulations for asbestos removal with reference to the Control of Asbestos at Work Regulations 2002 and the Asbestos (Licensing) Regulations 1983 (amended 1998), outlining the duties of the asbestos removal contractor, employer, owner and the laboratory. Refer to good practise for asbestos removal as laid out in the approved codes of practice supporting these regulations. Refer to other relevant HSE guidance. Review control limits, action levels and the clearance indicator for asbestos together with the philosophy behind setting them (1) (2) (3) (4) (5) (6) (7) (8).

2. CONTROL OF ASBESTOS EMISSIONS (10%)

Discuss the importance of the role of the method statement/plan of work and the use of control measures to reduce airborne asbestos emissions and to limit the spread of debris. Look in detail at the design, construction, testing and maintenance of enclosures and negative air management systems. Discuss the role and use of personal protective equipment, transit and hygiene facilities. Cover the importance of cleaning the area and the safe removal and disposal of debris (1) (2) (4) (5) (6) (7) (9) (10).

3. AIR SAMPLING FOR ASBESTOS (20%)

3.1 Types of air sampling

Detail the types of air sampling that can be carried out. Examine the sampling requirements and their relevance for identification of sources of contamination, assessment of personal exposure and the checking of efficiency and effectiveness of control measures (4) (11).

3.2 Air Sampling equipment and procedures

Discuss the requirements of the ERM, MDHS 39, MDHS 59 and the replacement WHO method in HSG 248 in relation to sampling of airborne asbestos and MMMF. Demonstrate the equipment required and the adjustment, measurement and calibration of flow. Discuss the requirements for recording calibration and site sampling information to ISO 17025 standards (4) (11) (12) (13).

3.3 Clearance Sampling

Discuss when and how visual inspection and clearance sampling are carried out, what must be looked for and the types and frequency of dust disturbance which must take place leading to clearance. (2) (4) (11).

Educational Objectives

The student must have a detailed knowledge of the approved methods for sampling of airborne asbestos and MMMF.

4. ENCLOSURE AND CLEARANCE AIR MONITORING (20%)

The course must contain all the elements of the four stage clearance procedure with the exception of sample mounting and counting which are covered in Proficiency module P403.

4.1 Safety aspects

Discuss the selection and use of PPE, its place in the control hierarchy and the likely protection it affords. Discuss transit and decontamination procedures that may need to be followed and medical records that may need to be kept (5) (6) (9) (10).

4.2 Enclosure Evaluation

Enclosure Inspection – prior to work to detect any deficiencies including smoke testing, leak testing, enclosure design etc. The evaluation of the enclosure must include the decontamination unit and any other equipment normally involved.

4.3 Clearance Inspections

Illustrate clearance inspections and give advice as to where asbestos may be found after contractors have completed stripping operations. Examine HSE Guidance Notes HSG 248 and EH51 in relation to clearance sampling and the meaning of thoroughly visually clean and how this is assessed (4) (6) (11).

4.4 The clearance indicator threshold.

Discuss its significance and application to measurements (2) (4) (11).

4.5 The role of the clearance sampler

Discuss the requirements imposed by ISO17025 (13) accreditation and the role of HSE and UKAS in ensuring the clearance procedure is carried out with integrity. Discuss the areas of potential conflict of interest and what to do if undue pressure or threats are made.

4.6 Certificates of re-occupation

Who must issue and who must receive the certificate of re-occupation and what it must contain. The status of any conditions specified (4).

Educational Objectives

The student must be able to describe the methods used to inspect and test an enclosure used for asbestos clearance.

5. PRACTICAL WORK (40%)

Practical work must be carried out to provide the student with all practical knowledge in carrying out the following:

Air sampling

- air sampling equipment, flow measurement and calibration.
- personal/static sampling.
- numbers and location of samplers

Clearance testing

- enclosure integrity and testing
- visual inspections
- Issuing reoccupation certificates

Role plays

- How to deal with awkward and pressure situations

COURSE LENGTH

It is envisaged this course would be run over 2 days with 1 day for the course theory, ½ day for the course practical and a further ½ day for the examination/assessment.

REFERENCES

- (1) HSC ACOP (L27) Fourth Edition (2002) Work with asbestos which does not normally require a license.
- (2) HSC ACOP (L28) Fourth Edition (2002) Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board
- (3) HSE Guidance (L11) (1999) Asbestos (Licensing) Regulations 1983 (as amended.)
- (4) HSE Guidance HSG248 Asbestos: The Analyst's guide for sampling, analysis and clearance procedures
- (5) HSE Guidance Note EH47 (2002). The Provision, Use and Maintenance of Hygiene Facilities for Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board.
- (6) HSE Guidance Note EH51 (1999) Enclosures Provided for Work with Asbestos
- (7) HSE Guidance Note HSG 189/1 (1999) Controlled Asbestos Stripping Techniques for Work Requiring a License.
- (8) HSE Guidance Note HSG 189/2 (1999) Working with Asbestos Cement.
- (9) HSE Guidance Note HSG 53 (1998). The Selection, Use and Maintenance of Respiratory Protective Equipment.
- (10) HSE Guidance INDG 288 (1999). Selection of Suitable Respiratory Protective Equipment for Work with Asbestos.
- (11) HSE Guidance MDHS 39/4 (1995) Asbestos Fibres in Air. Sampling and Evaluation by Phase Contrast Microscopy (PCM) Under the Control of Asbestos at Work Regulations.
- (12) HSE Guidance MDHS 59 (1988). Man Made Mineral Fibre by Phase Contrast Light Microscopy.
- (13) ISO 17025 (2000) General Requirements for the Competence of Testing and Calibration Laboratories.

COURSE EXAMINATION/ASSESSMENT

The students would be assessed as follows:

- A 45 minute MCQ BOHS examination (30 questions).
- A practical assessment carried out by the course provider as follows.

PRACTICAL ASSESSMENT - AIR SAMPLING AND CLEARANCE TESTING

Assessment must include:

- enclosure inspection - prior to work and to detect deficiencies.
- enclosure - visual clearance, smoke testing, leak testing, enclosure design.
- use of PPE
- set up of air sampling equipment
- evaluation of method to be used for clearance of the decontamination unit.
- Confirm the candidate's full knowledge of all of the elements of the four stage clearance procedure, except for sample evaluation which is covered by P403.
- Confirm the candidate's ability to do all relevant calculations. Relating to the number of samples to be taken for clearance and the air volume for each sample etc.

Successful completion of the above will lead to a :

‘PROFICIENCY CERTIFICATE’
in AIR SAMPLING AND CLEARANCE TESTING OF ASBESTOS