

**COURSE OVERVIEW HE0919**  
**Occupational Hygiene Certification Program**  
**OHTA504: Asbestos and Other Fibres**

*(Accredited by the Occupational Hygiene Training Association - OHTA)*

**Course Title**

Occupational Hygiene Certification Program:  
 OHTA504: Asbestos and Other Fibres  
*(Accredited by the Occupational Hygiene Training Association - OHTA)*



**Course Date/Venue**

December 21-25, 2025/Slaysel 02 Meeting Room, Movenpick Hotel & Resort Al Bida'a Kuwait, City of Kuwait

**Course Reference**

HE0126



**Course Duration**

Training: Five days/4.0 CEUs/40 PDHs  
 Exam: Two hours (2 Hours)  
 Total: 6 Days

**Course Description**



***This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.***

The course is an optional module for the International Certificate in Occupational Hygiene (ICertOHTA). It is designed to be delivered as a 5-day taught programme including student assessment.



The aim of the course is to:-



- Extend knowledge of occupational exposure to fibrous dusts used in industry (asbestos, machine made mineral fibres, aramids, carbon, etc.)
- Understand the health risks of asbestos and other fibres as well as the means of evaluation and control
- Apply these principals for asbestos consultants as well as OH professionals

On Completing this course successfully, participants will be able to:-

- Extend knowledge of occupational exposure to fibrous dusts used in industry (asbestos, machine made mineral fibres, aramids, carbon, etc.)
- Understand the health risks of asbestos and other fibres as well as the means of evaluation and control
- Apply these principals for asbestos consultants as well as OH professionals
- Conduct asbestos surveys: sampling, identifying bulk asbestos types by microscopic techniques and relevant safety requirements
- Adopt and recognize current good practice in the construction and use of enclosures for asbestos remediation and the use of decontamination units
- Understand all the principles of clearance testing, the requirements for measurement and appropriate techniques for post remediation evaluation
- Conduct air sampling to determine airborne concentrations of asbestos and other fibres following recognized procedures including microscopic counting techniques
- Advise on all techniques for safe management of asbestos in buildings following good practice

This course is designed to provide participants with a detailed and up-to-date overview of OHTA504: Asbestos and Other Fibres. It covers the asbestos fibre types, uses of asbestos and man made mineral fibres (MMMMF); the health hazards and exposure limits; the health effects of asbestos and control limits for asbestos; reviewing inhalation studies for other fibres including erionite, man-made mineral and other fibres; the exposure limits for man made mineral fibres, typical exposures to man made mineral fibres and approaches to eliminating asbestos related diseases; the personal protective equipment for working with asbestos including respiratory protection and personal protective clothing; the types and uses of asbestos in buildings; and conducting surveys of asbestos containing materials in buildings.

During this interactive course, participants will learn the bulk sampling, risk assessment and management of asbestos containing materials; the asbestos in soils and man-made ground and land investigations, soil sampling and asbestos removal; the enclosures and removal procedures, waste removal and testing, monitoring and maintaining enclosures; the air sampling equipment and procedures, clearance sampling, bulk samples analysis and health and safety precautions; the asbestos in soils and quality control, fibre counting, filter preparation and calculation of results and quality control; and the electron microscopy covering scanning electron microscopy (SEM), transmission electron microscopy (TEM) and energy dispersive x-ray.

### **Course Objectives**

Upon the successful completion of this course, each participant will be able to:

- Achieve the OHTA Certificate in OHTA504: Asbestos and Other Fibres
- Identify the asbestos and other fibres covering asbestos fibre types, uses of asbestos and man made mineral fibres (MMMMF)
- Recognize the health hazards and exposure limits including the health effects of asbestos and control limits for asbestos
- Review inhalation studies for other fibres including erionite, man-made mineral and other fibres

- Discuss the exposure limits for man made mineral fibres, typical exposures to man made mineral fibres and approaches to eliminating asbestos related diseases
- Apply the personal protective equipment for working with asbestos including respiratory protection and personal protective clothing
- Identify the types and uses of asbestos in buildings and conduct surveys of asbestos containing materials in buildings
- Carryout bulk sampling and risk assessment and management of asbestos containing materials
- Discuss asbestos in soils and man-made ground and apply land investigations, soil sampling and asbestos removal
- Define enclosures and carryout removal procedures, waste removal and testing, monitoring and maintaining enclosures
- Employ air sampling equipment and procedures, clearance sampling, bulk samples analysis and health and safety precautions
- Discuss asbestos in soils and apply quality control, fibre counting, filter preparation and calculation of results and quality control
- Discuss electron microscopy covering scanning electron microscopy (SEM), transmission electron microscopy (TEM) and energy dispersive x-ray.

### Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

### Who Should Attend

This course provides an overview of all significant aspects and considerations of asbestos and other fibres for health and safety professionals, occupational health specialists including physicians, nurses. Specialists in subjects such as acoustics, ergonomics, human factors, occupational psychology, work organisation, biosafety, engineering, analytical chemistry and those who want a broader appreciation of how their role interfaces with other professions over health issues in the workplace will find this course beneficial.

### Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

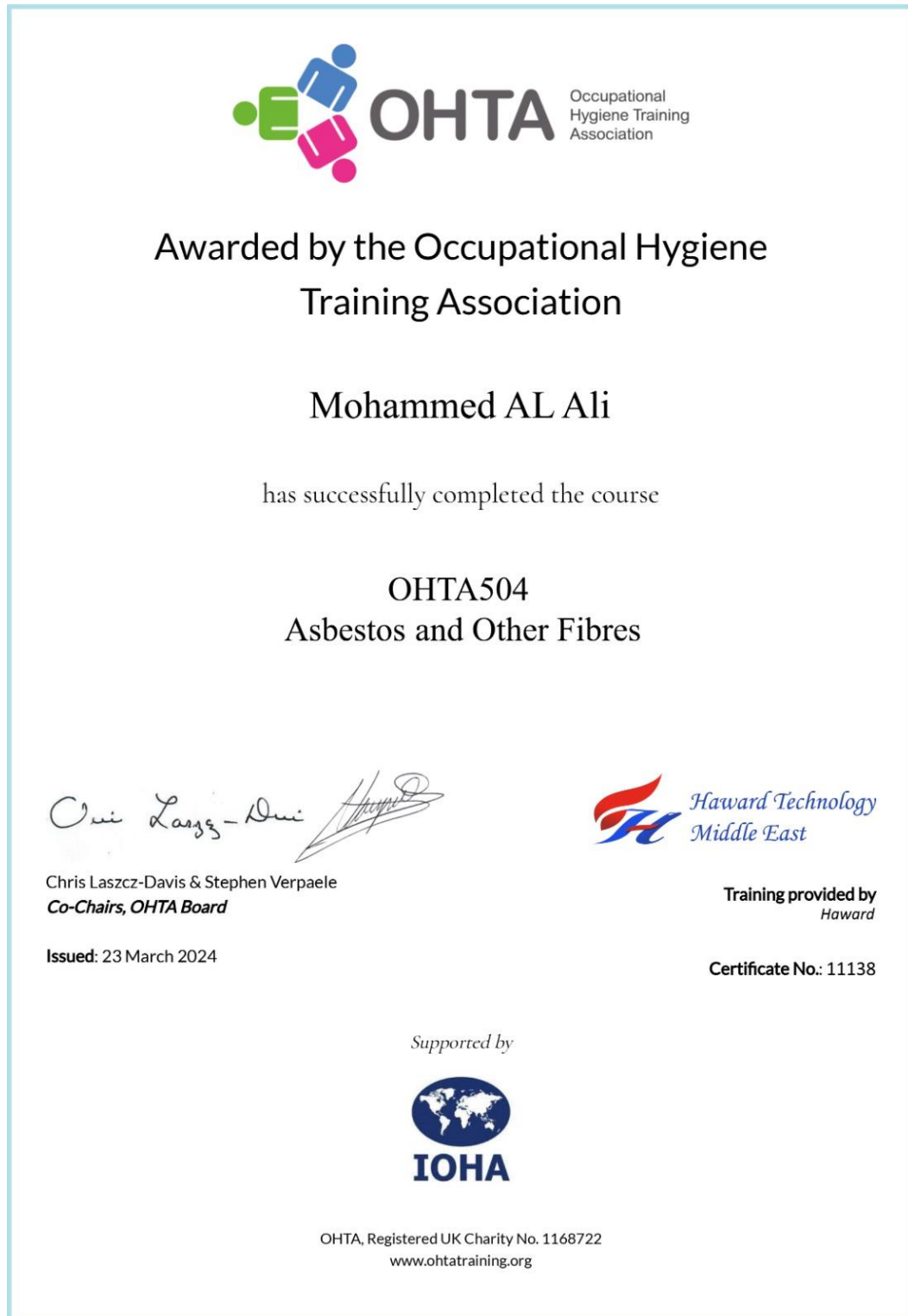
In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

**Course Certificate(s)**

(1) OHTA Certificates will be issued to participants who have successfully completed the course and passed the exam of the course.

**OHTA Certificate(s)**

The following certificate is a sample of the OHTA certificates that will be issued to successful candidates:-







- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

**Haward Technology Middle East**  
Continuing Professional Development (HTME-CPD)

**CEU Official Transcript of Records**

**TOR Issuance Date:** 14-Nov-23  
**HTME No.** 74851  
**Participant Name:** Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
HE0919	Occupational Hygiene Certification Program OHTA504: Asbestos and Other Fibres (Accredited by the Occupational Hygiene Training Association - OHTA)	November 10-14, 2023	40	4.0

Total No. of CEU's Earned as of TOR Issuance Date **4.0**

**TRUE COPY**  
*J. Castillo*  
Jaryl Castillo  
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2018 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2018 Standard.


Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking Continuing Education Units (CEUs) in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology is accredited by

P.O. Box 26070, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | E-mail: info@haward.org | Website: www.haward.org

### Certificate Accreditations


Haward Technology is accredited by the following international accreditation organizations:-

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Occupational Hygiene Training Association (OHTA)

Haward Technology is an Approved OHTA Trainer under the OHTA201 and OHTA500 series modules that promote better standards of occupational hygiene practice throughout the world.

Haward Technology supports hygiene professionals who wanted people around the world to enjoy the benefits of healthy working environments.


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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **4.0 CEUs** (Continuing Education Units) or **40 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

### Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



**Mr. Peter Jacobs**, is a **Senior HSE Consultant** with almost **25 years** of extensive experience within **Oil & Gas, Refinery** and **Petrochemical** industries. His wide experience covers in the areas of **OHTA Modules** (Measurement of Hazardous Substances, Thermal Environment, Noise Measurement & Its Effects, Asbestos & Other Fibers, Control of Hazardous Substances, Ergonomics Essentials, Health Effects of Hazardous Substances), Advanced **Industrial Hygiene, Incident Command & Report Writing, HAZOP, HAZMAT, HAZID, Health Risk**

**Assessment, Modern Safety Risk Management, Process Risk Management, Root Cause Analysis** Techniques, **HSE Management System** Development & Implementation, **SAESI Hazardous Materials** for the **First Responder Operations (NFPA 472)**, **Industrial Safety & Housekeeping, Job Safety & Hazard Analysis, Hazardous Substances** Measurement, **Workplace** Control, Physical Agents, **Emergency Response, Chemical & Biological** Operations, **Basic Safety & Loss Prevention**, Safety in **Chemical Laboratory, Confined Space Safety, Industrial Hygiene, Occupational Health & Hygiene, Ergonomics, Biological** Assessment, **Radiation** with Radon/Thoron Assessment, **Radiation** Protection Safety, **Radiation** Monitoring, Natural **Radiation** Sources, **Nuclear** Regulatory Act, **Industrial Ventilation, Air Pollution Dispersion** Modelling, Basic Clandestine **Drug Laboratory** Investigation, **Chemical** Engineering, **Fire Safety & Evacuation, Evacuation** Safety, Safety Orientation, Hand & Power Tools Safety, Isokinetic Stack Sampling, Dust Exposure, Quantifying Workplace Stressors, Noise & Airborne Pollutants, Thermal Stress, Illumination, Mine Health & Safety, Statistical Method Validation, Legal Audit Compliance, Riot & Crowd Control, ISO 14000, OHSAS 18000, ISO 17025 and ISO 9000.

During his career life, Mr. Jacobs has gained his practical and field experiences through his various significant positions and dedication as the **Forensic Science Laboratory Manager, Occupational Hygienist, Radiation Protection Officer, Lead Practitioner, Safety, Health & Environmental (SHE) Specialist, First Responder, OHS Inspector, Ambulance Assistant** and **LPG Distributor Auditor** from various international companies like the Sedulitas, Richards Bay Minerals, Sasol and South African Police Service.

Mr. Jacobs has a **Master's** degree in **Public Health – Occupational Hygiene**, a **National Diploma in Purchasing Management** and an **Intermediate Certificate in Mine Environmental Control** an **Accredited South African Emergency Services Institute (SAESI)**. Further, he is a **Certified Instructor/Trainer**, an Appointed Commissioned Officer, a SAIOH/ IOHA President, an Assessor/Moderator of Health & Welfare SETA, a **Registered Occupational Hygienist** of the Southern African Institute for Occupational Hygiene, awarded as a SAIOH **Occupational Hygienist** of the Year Award and a well-regarded member of the British Occupational Hygiene Society (**BOHS**), Mine Ventilation Society of South Africa (MVSSA) and South African Radiological Protection Association (SARPA). He has further delivered numerous trainings, courses, seminars, workshops and conferences worldwide.



### Course Fee

**US\$ 7,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

### Exam Fee

**US\$ 280** per Delegate + **VAT**

### Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

### Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

#### **Day 1: Sunday, 21<sup>st</sup> of December 2025**

0730 – 0745	<i>Registration &amp; Coffee</i>
0745 – 0800	<i>Welcome &amp; Introduction</i>
0800 – 0815	<b>PRE-TEST</b>
0815 – 0830	<b>Asbestos &amp; Other Fibres</b> <i>Historical Perspective • Groups at Risk from Asbestos Exposure</i>
0830 - 0930	<b>Asbestos &amp; Other Fibres: Asbestos Fibre Types</b> <i>Six Regulated Forms • Classification of Fibre Types • Structure of Asbestos Fibre Types • Physico-Chemical Properties of Asbestos Fibres</i>
0930 – 0945	<i>Break</i>
0945 - 1130	<b>Asbestos &amp; Other Fibres: Uses of Asbestos</b>
1130 - 1230	<b>Asbestos &amp; Other Fibres: Man Made Mineral Fibres (MMMF) &amp; Other Fibres</b> <i>Man-Made Mineral Fibres (MMMF) • Carbon Fibres • Aramid Fibres • Polyolefin Fibres</i>
1230 - 1330	<i>Lunch</i>
1330 – 1415	<b>Health Hazards &amp; Exposure Limits: Health Effects of Asbestos</b> <i>Asbestosis • Mesothelioma • Lung Cancer • Quantitative Risks from Asbestos Exposure • Extent of Asbestos Related Diseases</i>
1415 - 1530	<b>Health Hazards &amp; Exposure Limits: Control Limits Etc for Asbestos</b> <i>Control Limits • Typical Exposure Levels for Asbestos</i>
1530 - 1545	<i>Break</i>
1545 – 1630	<b>Health Hazards &amp; Exposure Limits: Inhalation Studies for Other Fibres including Erionite</b> <i>Man-Made Mineral &amp; Other Fibres • Exposure Limits for Man Made Mineral Fibres • Typical Exposures to Man Made Mineral Fibres</i>
1630 - 1650	<b>Health Hazards &amp; Exposure Limits: Approaches to Eliminating Asbestos Related Diseases</b> <i>World Health Organisation • Typical Legislative Approach (UK)</i>
1650 – 1700	<b>Recap</b> <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today &amp; Advise Them of the Topics to be Discussed Tomorrow</i>
1700	<i>End of Day One</i>

#### **Day 2: Monday, 22<sup>nd</sup> of December 2025**

0730 – 0830	<b>Personal Protective Equipment for Working with Asbestos: Respiratory Protection</b> <i>Use of Respiratory Protection • Types of Respiratory Protection • Face Mask Fit Testing</i>
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0830 - 0930	<b>Personal Protective Equipment for Working with Asbestos: Personal Protective Clothing</b>
0930 - 0945	Break
0945 - 1130	<b>Asbestos in Buildings &amp; Surveys: Types &amp; Uses of Asbestos in Buildings</b> Introduction • Applications of Asbestos
1130 - 1230	<b>Asbestos in Buildings &amp; Surveys: Surveys of Asbestos Containing Materials in Buildings</b> Introduction to Surveys • Types of Asbestos Surveys • Planning Asbestos Surveys • Health & Safety During Asbestos Surveys • Undertaking Asbestos Surveys
1230 - 1330	Lunch
1330 - 1415	<b>Asbestos in Buildings &amp; Surveys: Bulk Sampling</b> Sampling Strategy • Bulk Sampling Procedures • Asbestos in Soils & Made Ground – Bulk Material Sampling Procedures
1415 - 1530	<b>Asbestos in Buildings &amp; Surveys: Risk Assessment of Asbestos Containing Materials</b> Flow Charts • Risk Assessment Systems • Reviewing Risk Assessments
1530 - 1545	Break
1545 - 1630	<b>Asbestos in Buildings &amp; Surveys: Management of Asbestos Containing Materials</b> Introduction to Management Plans • Awareness Training for Workers, Contractors & Others • Development of an Asbestos Management Plan • Content of an Asbestos Management Plan • Reviews of the Asbestos Management Plan
1630 - 1650	<b>Asbestos in Buildings &amp; Surveys: Asbestos in Soils &amp; Man-Made Ground</b> Introduction – (Consider Multidisciplinary Team)
1650 - 1700	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today & Advise Them of the Topics to be Discussed Tomorrow
1700	End of Day Two

**Day 3: Tuesday, 23<sup>rd</sup> of December 2025**

0730 - 0830	<b>Asbestos in Buildings &amp; Surveys: Main Drivers - (Including Legal Position)</b> Health of Individuals - Workers & Neighbours • Health of End Users (Housing) • Control of Pollution & Environmental Protection • Specialist Waste & Controlled Disposal
0830 - 0930	<b>Asbestos in Buildings &amp; Surveys: Land Investigations</b> Brown Field Sites • Historical Poor Disposal Control Incl. Fly Tipping; Introduction to Land Investigation (ICRCL 64/85) • BS EN 14899:2005 – Characterisation of Waste; BS EN 10175:2011 +A2:2017 – Investigation of Cont. Sites • CIRIA C733 (SP168) • Asbestos in Soil & Made Ground Good Practice Site Guide (C765) • Stages of Asbestos in Land Investigation • Planning Asbestos Investigation • Health & Safety During Asbestos Sampling Strategies • Undertaking Asbestos Investigation
0930 - 0945	Break
0945 - 1130	<b>Asbestos in Buildings &amp; Surveys: Soil Sampling</b> Sampling Strategies (Randomised, Judgemental & Stratified) • Bulk Materials Sampling Procedures
1130 - 1230	<b>Asbestos in Buildings &amp; Surveys: Risk Assessment of Asbestos Containing Materials</b> Risk Assessment Systems • Reviewing Risk Assessments

1230 - 1330	Lunch
1330 - 1415	<b>Asbestos in Buildings &amp; Surveys: CAR:SOIL (2016)</b> EIC - CL:AIRE JIWG
1415 - 1530	<b>Asbestos in Buildings &amp; Surveys: HSG 248 - Asbestos: The Analyst Guide (Published 2021)</b> HSG 248: Chapter 7 - Soils & Made Ground • HSG 248: Appendix 7
1530 - 1545	Break
1545 - 1630	<b>Asbestos Removal: Preparation</b> Responsibilities of the Client / Building Owner • Risk Assessment; Plan of Work)
1630 - 1650	<b>Asbestos Removal: Enclosures</b> Definition & Use Enclosure Design & Main Features • Construction of Enclosures • Air Extraction Equipment • Decontamination Procedures
1650 - 1700	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today & Advise Them of the Topics to be Discussed Tomorrow
1700	End of Day Three

**Day 4: Wednesday, 24<sup>th</sup> of December 2025**

0730 - 0830	<b>Asbestos Removal: Removal Procedures</b> Wet & Dry Methods for Removing Asbestos Containing Materials • Controlled Wetting by Injection Method • Controlled Wetting by Spray Method • Dry Removal Method; Wrap & Cut Removal Method • Glove-Bag Removal Method • Hot Stripping of Asbestos • Mechanical Removal
0830 - 0930	<b>Asbestos Removal: Waste Removal</b> Waste Removal Procedures • Waste Bags & Containers • Disposal of Asbestos Waste • Covered Lorries • Waste Characterisation & Waste Acceptance Criteria
0930 - 0945	Break
0945 - 1130	<b>Asbestos Removal: Testing, Monitoring &amp; Maintenance of Enclosures</b> Testing & Monitoring • Testing & Maintenance of Air Extraction Equipment
1130 - 1230	<b>Air Sampling: Principles &amp; Types of Air Sampling</b>
1230 - 1330	Lunch
1330 - 1415	<b>Air Sampling: Air Sampling Equipment &amp; Procedures</b> Introduction • Air Sampling Equipment • Sampling Strategies • Site Perimeter Monitoring for Soils • Personal Monitoring Whilst Disturbing Dust • Recording Calibration & Sampling Information
1415 - 1530	<b>Air Sampling: Clearance Sampling &amp; Certification</b> Introduction • Visual Inspection • Air Sampling • Clearance Certification
1530 - 1545	Break
1545 - 1630	<b>Air Sampling: Analysis of Bulk Samples</b> Introduction • Health & Safety Precautions
1630 - 1650	<b>Air Sampling: Fibre Identification</b> Initial Examination • Sample Preparation • Stereo Microscopy • Polarised Light Microscopy
1650 - 1700	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today & Advise Them of the Topics to be Discussed Tomorrow
1700	End of Day Four

**Day 5: Thursday, 25<sup>th</sup> of December 2025**

0730 – 0830	<b>Air Sampling: Asbestos in Soils - Standing Committee of Analysts (National Laboratory Service)-Environment Agency</b> Three Stages • Sample Treatment • Sample Interferences & Limitations • Sample Handling
0830 - 0930	<b>Air Sampling: Quality Control</b> Quality Control Procedures • Detection Limits
0930 - 0945	Break
0945 - 1130	<b>Air Sampling: Interfering Fibres &amp; Products</b>
1130 - 1230	<b>Fibre Counting: Phase Contrast Microscopy</b> Setting Up the Microscope • Centring the Illuminating Field Diaphragm • Centring the Phase Ring • HSE/NPL Mk II Test Slide • Determination of the Diameter of Walton-Beckett Eyepiece Graticule
1230 - 1330	Lunch
1330 – 1415	<b>Fibre Counting: Filter Preparation</b>
1415 - 1530	<b>Fibre Counting</b> Fibre Counting Rules • Evaluation of Air Samples • Limitations of Fibre Counting Method
1530 - 1545	Break
1545 - 1600	<b>Fibre Counting: Calculation of Results &amp; Quality Control</b> Calculation of Results • Fibre Counting Quality Control Schemes
1600 – 1615	<b>Fibre Counting: Electron Microscopy</b> Introduction • Scanning Electron Microscopy (SEM) • Transmission Electron Microscopy (TEM) • Energy Dispersive X-Ray
1615 - 1630	<b>Course Conclusion</b>
1630 – 1645	<b>POST-TEST</b>
1645 – 1700	Presentation of Course Certificates
1700	End of Course

**MOCK Exam**

Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK exam during the 30 days following the course completion. Each participant has only one trial for the MOCK exam within this 30-day examination window. Hence, you have to prepare yourself very well before starting your MOCK exam as this exam is a simulation to the one of the Certification Body.

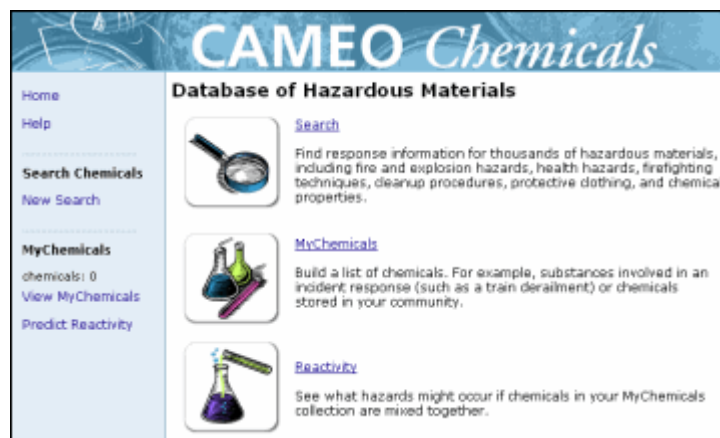
**Day 6: OHTA Online Exam (to be scheduled within 30 days of course completion)**

0900 – 0945	<b>OHTA Exam Registration/Briefing</b>
0945 - 1145	<b>OHTA Exam</b>
1145 - 1200	Closing Ceremony
1200	End of Exam



### **Simulators (Hands-on Practical Sessions)**

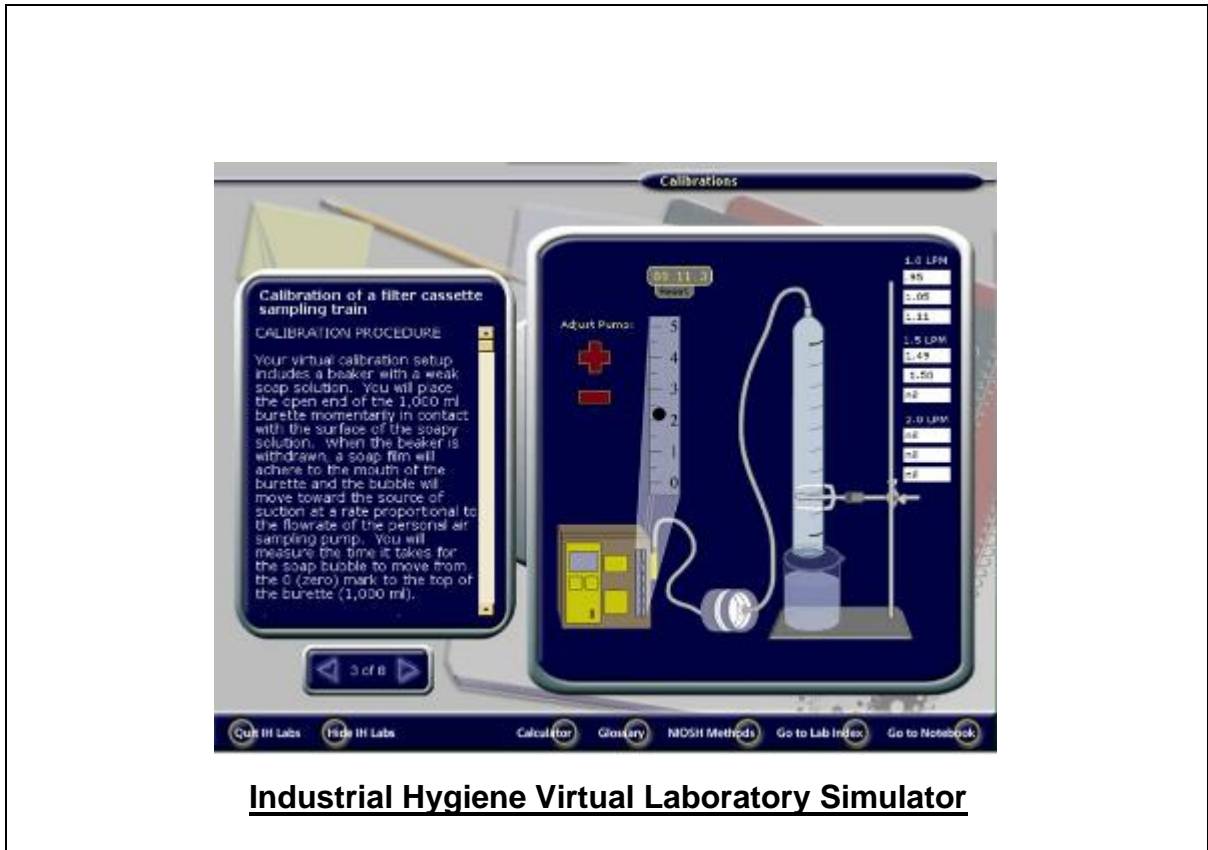
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the Environmental simulators “CAMEO Chemicals Suite Software”, “US EPA SCREEN3 Model”, “AERSCREEN Model”, “Industrial Hygiene Virtual Laboratory Simulator” and “CIHprep V9.0 Simulator”.



**CAMEO Chemicals Suite Software**



**US EPA SCREEN3 Model**



CIHprep V9.0

Tools Help

Questions in set: 2538

Question Number: 894  
Engineering Controls/Ventilation

A room 50 x 20 x 10 feet contains 100 ppm of CCl<sub>4</sub>. How much time is required to lower the concentration to 25 ppm if a blower generating 300 cfm is used to clear the room?

A) 46.0 min  
B) 11.1 min  
C) 7.5 min  
D) 54.0 min

You did not answer this question.

The correct answer is: A

$$t = \log(C/C_0) \cdot (-2.303) \cdot (P/Q)$$

Substituting we get:  
 $t = \log(25/100) \cdot (-2.303) \cdot (10,000 \text{ ft}^3 / 300 \text{ cfm})$   
 $t = 46 \text{ min}$

Where:  
P = Room volume  
C<sub>0</sub> = Beginning concentration  
C = Ending concentration  
Q = Flow

CIHprep V9.0  
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**CIHprep V9.0 Simulator**

**Course Coordinator**

Mari Nakintu, Tel: +971 2 30 91 714, Email: [mari1@haward.org](mailto:mari1@haward.org)