European Occupational Hygiene Competency Framework

Improving Worker Health Protection at a European Level

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Version 0.1

Introduction

Ensuring Consistent, High-Quality Occupational Hygiene Practice Across Europe

The progressive internationalisation and economic integration across the European continent have significantly influenced the evolution of occupational health and safety. Within this context, occupational hygiene constitutes a key scientific and professional discipline responsible for anticipating, recognising, evaluating, and controlling workplace exposures that may affect workers' health. As industrial processes, technologies, and supply chains increasingly cross-national borders, occupational hygienists operate within a knowledge environment characterised by growing transnational exchange of scientific evidence, technical practices, and regulatory approaches. This dynamic is reinforced by the development of European Union directives and supranational standards produced by the European Committee for Standardization (CEN) and the International Organization for Standardization (ISO), which collectively promote the gradual harmonisation of regulatory frameworks, methodologies, and preventive strategies in occupational hygiene.

Our purpose is to harmonise the competencies expected of occupational hygienists and improve comparability across countries.

Notwithstanding these unifying developments, substantial variation persists across European countries regarding the competency requirements, career pathways, and systems of professional recognition governing the practice of occupational hygiene.

From the perspective of mobility of professionals within the European labour market, such disparities represent a structural barrier to the mutual recognition of professional qualifications and limit the capacity of occupational hygiene professionals to practice across national borders. In addition, the absence of comparable professional standards complicates recruitment processes for multinational enterprises that require highly qualified specialists capable of operating effectively within diverse regulatory environments.

Although several European standards and norms address specific technical aspects of occupational hygiene and frequently refer to the involvement of a competent professional responsible for conducting occupational hygiene assessments, a coherent and harmonised definition of the competencies required of an occupational hygienist has yet to be established at the European level. The absence of a shared competency framework undermines the comparability and transparency of professional qualifications and constitutes an obstacle to both the professionalisation of occupational hygiene and the further integration of occupational hygiene practices within the European regulatory and labour market context.

The European Platform for Occupational Hygiene (EPOH) led a Europe-wide effort with national associations to define common occupational hygiene competencies.

For these reasons, the EPOH, a non-profit organisation whose members are the national professional associations of occupational hygiene across Europe, initiated a process to develop a European-wide harmonisation of competencies, career pathways and certification schemes for occupational hygienists. As a first step in this process, EPOH has defined the competency framework.

Built through a multi-year expert analysis and agreement across European Occupational Hygiene Associations

A working group was established and over a multi -year period, reviewed relevant publications and analysed existing occupational hygiene competence frameworks across the world. In addition, several meetings were held with EPOH's member national associations to discuss the different aspects of the competency framework. The final version was formally approved by the member national associations at the 2026 EPOH Annual Assembly.

The next step for EPOH, will be to explore the feasibility of a European certification scheme that aligns with this competency framework and supports consistent professional recognition across the European continent.

Clear, outcome-based competencies mapped to EQF levels to ensure consistency and comparability across Europe.

The European competency framework defines the minimum expectations and sets out an outcome-based competence-oriented approach aligned with ISO standard 17204 on certification and the European Qualifications Framework (EQF). The EQF shapes the framework by defining competencies in terms of measurable outcomes in terms of knowledge, skills, autonomy and responsibility, rather than prescribing specific training routes.

The framework distinguishes three levels of competence which are not necessarily sequential.

- Technician (EQF 5), a professional who conducts core activities following established guidance and protocols,
- Specialist (EQF 6) a professional with demonstrated expertise in one or more specialist areas of occupational hygiene, and
- Senior (EQF 7), a professional with comprehensive and broad expertise in the management of occupational hygiene.

Each level specifies a unique set of skills, competencies, and practice times, while leaving the design of national training programmes and the implementation of one or more EQF levels to individual national associations. This approach preserves national flexibility while maintaining consistent competence expectations across Europe.

Who should use this document

The primary audience for this document is the national occupational hygiene associations across the European continent, who may use the framework to align or benchmark their national competency standards. It is also intended for occupational hygienists at all career stages from technicians, specialists and senior professionals and are seeking clarity on expected competencies and progression routes as outlined in the framework. In addition, the document serves regulators, employers, training providers, offering a transparent reference for assessing competencies, designing EQF-aligned training, and supporting the development of harmonised European recognition and certification systems.

Towards a shared path of unified occupational hygiene competency and recognition across Europe

This competency framework represents an important step toward ensuring clarity and comparability of competence in occupational hygiene, as well as recognition of the professional across Europe. EPOH will continue to advancing the profession through ongoing collaboration, dialogue, and

support for harmonised practices, including the next phase which will focus on the certification process and recognition of the framework at a European level.

We invite national associations and professional bodies to adopt and apply this framework within their own systems, helping to build a coherent and trusted foundation for occupational hygiene competence and practice throughout Europe.

Consulted documents

1. AIHA. Core Competencies of the practice of Industrial/Occupational Hygiene. 2025 Edition. Available in: https://www.aiha.org/publications/core-competencies-for-the-practice-of-industrial-occupational-hygiene
2. AIOH. AIOH Career development pathway for Occupational Hygienists. Available in: https://www.aioh.org.au/media/2022/07/AIOH-Career-Development-Pathway-Table.pdf
3. Brosseau L, Fredrickson A. Assessing outcomes of Industrial Hygiene graduate education. Journal of Occupational and Environmental Hygiene, 6:257-266 (2009)
4. European Agency for Safety and Health at Work. Occupational safety and health preventive services: the professionals' perspective. 2024. Available in: https://osha.europa.eu/sites/default/files/documents/OSH-preventive-services-and-professionals_EN.pdf
5. European Union Europass. The European Qualifications Framework. Available en: https://europass.europa.eu/en/european-qualifications-framework-eqf
6. IOHA. Occupational/Industrial Hygiene knowledge and competency requirements. National Accreditation Recognition (NAR) Committee.
7. ISO/IEC 17024:2012. Conformity assessment. General requirements for bodies operating certification of persons. Available in: https://www.iso.org/standard/52993.html
8. NZOHS. The Occupational Hygiene Career Pathway. Available in: https://nzohs.org.nz/wp-content/uploads/2022/08/Career-Pathway-23-August-2022.pdf
9. Organización Panamericana de Salud. La higiene ocupacional en América Latina y el Caribe: una guía para establecer programas de formación académica. (2024). OPS. Available in: https://iris.paho.org/handle/10665.2/62062
10. Verma DK, Sass-Kortak AM, Gaylor DH. Evaluation of professional competency in Occupational Hygiene in Canada. The CRBOH Program. Am.Ind Hyg.Assoc.J. 55(4);364-369 (1994)
11. WHO. Occupational Hygiene in Europe, Development of the Profession.European Occupational Health Series No.3. (1992).
12. UNI 11711:2018 "Attività professionali non regolamentate – Igienista occupazionale – Requisiti di conoscenza, abilità e competenza", ("Unregulated professional activities – Occupational hygienist – Requirements for knowledge, skills, and competence"), UNI – Ente Italiano di Normazione
13. BOHS Statement of Occupational Hygiene Competencies, Issue 1, December 2023

European Occupational Hygiene Competency Framework

Notes on the Competency Framework.

- The OH competency framework complies with European Qualifications Framework (EQF), which is an outcome-based framework. Individual associations or countries can determine the necessary training to meet the outcome. This framework is the minimum expected.
- There are 2 main levels of competency, Technician level (EQF5) and Professional or senior level (EQF 7). There is an additional level known as the Specialist level (EQF Level 6) for those who want to specialise in one or a few topics e.g. asbestos. The 3 levels are described below. Individual associations or countries can choose to apply all three levels locally or only one or two of them.
- The Certification process is presently beyond the scope of this document.
- Awareness level (not included in the framework) can be obtained via modules or other training courses, for example, 'The Basics of Occupational Hygiene' training, offered by the AIHA, BOHS, OHTA, SOFHYT and other national associations.

  Reference : EQF information, https://europass.europa.eu/en/description-eight-eqf-levels

Job Scope and Task Description Summaries for the 3 Competence Levels

Level	Overall job scope and task description summary	Achieved by	Example assessment methods*
Occupational Hygiene Technician	Can demonstrate expertise in the technical level in occupational hygiene, including: 1. Undertakes for non-complex situations qualitative and quantitative standardized risk assessments on chemical, biological, physical hazards (e.g. noise, vibration, thermal environment) and ergonomics; 2. Plans and organises surveys, develops sampling strategies in accordance with established guidance and protocols; 3. Understands OELs and health standards which represent adequate control and can interpret the results; 4. Identifies reasonably practicable control measures for non-complex situations e.g. local exhaust ventilation (LEV) and assess effectiveness; 5. Communicates with supervisors and workers and knows when to seek professional expert input 6. Works in accordance with the code of ethics for the profession. NOTE: Non-complex is defined as 'scenarios that are straightforward, not interrelated or hard to separate, assess, or solve'.	Minimum 3 years of practice demonstrated by employment or equivalent experience prior to taking certification. Examples of evidence of practice*: working in the field, references, publications, taking part in relevant research, teaching, associations or committees. Career progression: Obtaining certification at technician level demonstrates competence at this level. Technician level occupational hygienists typically conduct risk assessments, exposure monitoring and communicate results to stakeholders.	Written examination and /or oral, experience portfolio, research, learning, dissertation
Professional or Senior Occupational Hygienist	Can demonstrate comprehensive broad expertise in the management of occupational hygiene including: 1. Undertakes occupational risk assessments, including covering complex situations; 2. Develops strategies and protocols for occupational hygiene assessments, surveys and interprets the results; 3. Develops cost effective and reasonably practicable control methods and management	Minimum 4 years of practice demonstrated by employment or equivalent experience prior to taking certification. Note: The 4 years of practice are taken after certification at technical level and prior to sitting certification for Senior/Professional level or else 7 years of practice prior certification	Written examination and /or oral, experience portfolio, research, learning, dissertation

	strategies to prevent, control and manage health risks; 4. Is able to develop, manage and implement occupational hygiene programmes; 5. Communicates effectively on the above with management, workers and other stakeholders; 6. Works in accordance with the code of ethics for the profession. NOTE Complex is defined as 'scenarios comprising complicated and/or interrelated elements of which the degree and nature of the relationship is imperfectly known'.	Examples of evidence of practice *: CV, references, publications, taking part in relevant research, teaching, associations or committees. Career progression: Obtaining the senior/professional certification demonstrates competence at a management level. This level is more advanced than the technician level. Senior occupational hygienists typically advise stakeholders in the comprehensive management of occupational hygiene.	
Specialist or advanced technician in a field of occupational hygiene	Shows expertise of one or more specialist areas of occupational hygiene science or practice and specifically: 1. Has deep specialist understanding and can manage complex projects; 2. Conducts occupational hygiene assessments, surveys and interprets the results; 3. Develops innovative control methods and management strategies to prevent and control risk; 4. Communicates effectively with managers, supervisors, workers and other stakeholders; 5. Works in accordance with the code of ethics for the profession.	Minimum 4 years of practice demonstrated by employment or equivalent experience in the specialist area. Specialist/advanced technicians do not need to have the full scope of knowledge of occupational hygiene required for the technical level. Examples of specialist or advanced technicians include those specializing in topics such as asbestos, noise, or legionella. Examples of evidence of practice*: CV, references, publications, taking part in relevant research, teaching, associations or committees. Career progression: A specialist/advanced technician can demonstrate competence in the relevant elements at technician level as well as demonstrate advanced or specialist technical competencies.	Written examination and /or oral, experience portfolio, research, learning, dissertation

Key: * 'evidence of practice' and 'assessment methods' are examples. The framework is outcome based and countries can determine the 'how' these achieved i.e. what they accept as evidence of practice and specific assessment methods.

Occupational Hygiene Technician – Detailed Competencies

EQF level 5 Tertiary vocational qualification	Occupational Hygiene Technician	Achieved by	Example assessment methods
Overall job scope and task description	Can demonstrate expertise in the technical level in occupational hygiene, including: 1. Undertakes qualitative and quantitative risk assessments chemical, biological, physical hazards (e.g. noise, vibration, thermal environment) and ergonomics, for non-complex situations; 2. Plans and organises surveys, develops sampling strategies in accordance with established guidance and protocols; 3. Understands OELs and health standards which represent adequate control and can interpret the results; 4. Identifies reasonably practicable control measures for non-complex situations e.g. local exhaust ventilation (LEV) and assess effectiveness; 5. Communicates clearly with supervisors, managers and workers and knows when to seek professional expert input; 6. Works in accordance with the code of ethics for the profession. NOTE: Non-complex is defined as 'scenarios that are straightforward, not interrelated or hard to separate, assess, or solve'.	Minimum 3 years of practice demonstrated by employment or equivalent experience prior to taking certification. Examples of evidence of practice*: working in the field, references, publications, taking part in relevant research, teaching, associations or committees. Career progression: Obtaining certification at technician level demonstrates competence at this level. Technician level occupational hygienists typically conduct risk assessments, exposure monitoring and communicate results to stakeholders.	Written examination and /or oral, experience portfolio, research, learning, dissertation

	Job and Task description	Competence	Abilities Knows, understands and applies	Outcome
A	Undertakes qualitative and quantitative risk assessments, chemical, biological, physical hazards (e.g. noise, vibration, thermal environment) and ergonomics, for non-complex situations	OH Knowledge and understanding	**Chemical** • Describes commonly used toxicological terms including describing the different effects e.g. stochastic; • Main routes by which hazardous substances can enter the body, and the factors which influence their absorption, distribution, storage and elimination; • Main sources of information on hazardous substances and work processes and organisation; • Main features of occupational illness and disease, the principal target organs affected by hazardous substances at work, and the factors which influence the degree of harm, and the effects for which no threshold can be defined; • Main routes of exposure and toxic and health effects for hazardous substances commonly encountered in the workplace and common hazardous processes; • Describes the nature and properties of asbestos, and common man made mineral and other fibres and their health effects;• Describes the uses of asbestos in buildings and the public health risk that these may pose. **Biological agents** • Describes commonly used microbial and epidemiological terms;	• Can demonstrate accurate factual and theoretical knowledge about the general principles and practice of occupational hygiene

			• Main routes by which biological agents can enter the body, and the factors that influence the infection; • Main sources of information on biological agents/hazards and work processes and organization; • Main features of the main infections by biological agents at work, as well as main non-infectious effects on workers' health and factors which influence the degree of harm; • Main routes of exposure and health effects for biological agents commonly encountered in the workplace; • Describes the nature and properties of each risk group of biological agents; • Describes common environments where biological risks may exist, and potential public health implications. **Noise and vibration** • Describes the consequences to health and well-being of excessive exposure to noise and vibration. **Thermal Environment** • Identifies sources of thermal stress within the working environment; • Understands the nature of thermal strain on the body. **Lighting, non-ionising and ionising radiation** Understands/describes the different types of radiation, including lighting, on the electromagnetic spectrum and their effects on human health. **Ergonomics and Manual Handling** • Describes the basic concepts of ergonomics, including manual handling and display screen equipment; Describes work related causes of ergonomic health impacts such as musculoskeletal disorders. **Ionising and non-ionising radiation** • Understands the components of the electromagnetic spectrum and their health effects.	
B	Undertakes qualitative and quantitative risk assessments chemical, biological, physical hazards (e.g. noise, vibration, thermal environment) and ergonomics, for non-complex situations,	General Evaluative skills (monitoring, reviewing and evaluate) / Risk Assessment (investigation, Assessment, Analysis & diagnostic skills)	**General Health Risk Assessment** • Describes the general approach to health risk assessment, including the role of monitoring and identifying health risks that require a more in-depth assessment; • Devises and performs a suitable assessment and sampling monitoring strategy according to the hazardous agent at the workplace following standardized monitoring protocolsRecord monitoring results accurately and factually according to established formats; • Understands the current monitoring standards; • Understands the importance of design considerations in terms of the workplace, process, and plant, as a means of reducing occupational exposures; • Monitors, reviews and evaluates following change in the workplace or tasks;	• Can demonstrate a range of cognitive and practical skills needed to understand how to monitor, review and evaluate occupational hygiene interventions or problems in the workplace and generate solutions to specific problems

			• Considers vulnerable populations, such as pregnant workers, individuals with chronic illnesses, and younger and older populations. **Chemical and biological agents** • Describes how airborne contaminants are generated by industrial processes, how this impacts on the control strategy, and how control solutions can thereby be optimised; • The need for information, instruction and training including use of SDSs, signage, procedures; • Understands information within a safety data sheet (SDS) and an extended safety data sheet (eSDS) with the relevant exposure scenarios attachments and know how to interpret them; • The principal elements of a local exhaust ventilation and general ventilation systems, give examples of typical installations; • Knows how to carry out the necessary measurements to assess whether a local exhaust ventilation system is effective and operating to the design specification; • Selects appropriate equipment and methods to measure specific airborne contaminants; • Understands the principles of and requirements for asbestos surveys including taking samples and identifying bulk asbestos types by microscopic techniques including relevant safety requirements; • Understands and applies basic statistical parameters. **Noise and vibration** • Understands the measurement (including dosimetry) of noise and vibration concerning current standards; • Conducts surveys in the workplace to assess risks from noise and vibration; • Appreciates and advises on environmental noise assessment; • Understands and applies basic statistical parameters.	
			Thermal environment • Makes an assessment of the thermal environment through appropriate measurement and other means; • Evaluates the likely risk from exposure to thermal stress. **Lighting, non-ionising and ionising radiation** • Understands the assessment and measurement of lighting and the different types of radiation on the electromagnetic spectrum. **Ergonomics and Manual Handling** • Conducts ergonomic risk assessment of common work situations; • Understands how to improve as well as design workplaces according to good ergonomic principles. **Ionising and non ionising radiation**	

			• Understands the components of the electromagnetic spectrum and their assessment and control. (Achievement of these outcomes could be evidenced by having passed modules, e.g.: OHTA, or an accredited University course or equivalent.)	
C	Identifies reasonably practicable control measures for non-complex situations	Decision-making (problem-solving, planning, designing, negotiation of courses of action) General Evaluative skills (monitoring, reviewing and evaluate)	**Control and recovery measures** • The meaning of "adequate control" (hierarchy of control principle), particularly in relation to personal exposures; • Understands the impact and consequences of risk reduction measures such as engineering control on workers and the business; • Recognises the range of approaches to risk reduction embodied in the hierarchy of control, including elimination, substitution, engineering control and personal protective equipment; • Selects appropriate controls and control strategies for implementation; • Recognises the impact that control measures may have on other workplace hazards; • Determines how control solutions can thereby be optimised; • Understands the need to take a holistic approach to the design of control solutions; • Recognises the limitations of local exhaust hoods and enclosures and the means to optimise their effectiveness; • Devises and selects appropriate control strategy; • How personal protective equipment programmes may be used in an effective manner; • Problem-solving in terms of standard risk, hierarchy of control and control effectiveness and efficiency; • Understands current standards and good practice; • Describes asbestos management and control for 1) asbestos remediation/abatement and 2) asbestos in buildings; • Monitors, reviews and evaluates following change in the workplace or tasks. (Achievement of these outcomes could be evidenced by having passed modules, e.g.: OHTA, or an accredited University course or equivalent.)	• Can exercise self-management within professional guidelines in predictable occupational hygiene contexts, which are sometimes subject to change • Can demonstrate a range of cognitive and practical skills needed to understand how to risk assess, monitor, review and evaluate occupational hygiene controls, interventions or problems in the workplace • Can demonstrate the ability to problem solve and devise adequate control measures
D	Understands OELs and health standards which represent adequate control	Research and Enquiry Methods	• Demonstration of contextual application of knowledge related to exposure limits and health standards; • Interprets and applies of national, EU and international regulations and standards concerning health protection in the workplace and the impact on the external environment; • Understands and conducts basic interpretation epidemiological and toxicological studies.	• Can locate and interrogate core information relating to occupational exposure limits and health standards
E	Implements and maintains basic occupational hygiene	Implementation and Management Skills (Implementing and Taking	• Implementation and management of:o health risk assessments monitoring surveys, lab analysis and data;o control measures including PPE e.g. testing, maintenance and training;o risk communication; • Ability to work independently but understanding of when to ask for supervision of a senior/professional	• Can guide the routine work of non-hygienists, taking some responsibility for the evaluation of

	management programs	Action)Professional Record Keeping	occupational hygienist.Supervision refers to the professional oversight provided by a senior/professional occupational hygienist. Supervision includes availability for consultation to support decision-making, clarify uncertainties and ensure quality.Maintains appropriate, legal and accurate records which form a sufficient basis for effective professional practice.	occupational exposure, exercising self-management within professional guidelines and the limits of personal knowledge. • Can accurately and effectively record information appropriate for occupational hygiene and understand the management and regulatory implications of doing so
F	Communicates neatly clearly with supervisors, managers and workers and knows when to get / need professional expert input	Communication and Reporting	• Provides general technical advice on occupational hygiene and its implementation • Presents the basic results of the occupational hygiene risk assessment in clear language to enable management to comply with relevant legislation; • Communicates effectively to managers, supervisors and workers; • Knows when to access further professional expert occupational hygiene help.	• Can accurately and effectively articulate core principles of occupational hygiene, including specific hazards and risks in a way that can be acted upon appropriately by the intended audience
		Interprofessional Working	• Knows the limits of occupational competence and when to seek further expert opinion; • Ability to work within a multidisciplinary team environment including understand the complementary roles of other professionals relevant to their work e.g. occupational health physicians; • Competence in collaborating with other prevention figures, in compliance with current health and safety regulations; • Skills to interpret and assess risk situations in collaboration with other prevention figures / professionals; • Participates in conferences and starts to build an external network.	• Understands the role and importance of other professionals and can work inter-professionally within professional guidelines and the limits of personal knowledge.
G	Works in accordance with the code of ethics for the profession	Professionalism and Judgement	• Understands and demonstrates in application the importance of, and adherence to a relevant Code of Ethics • Works within their national professional occupational hygiene organisation code of ethics or, if that is not available the IOHA Code of Ethics.	• Understands the values and importance of occupational hygiene, the core ethical challenges and subscribes to and understands a recognised occupational hygiene ethics framework

Professional or Senior Occupational Hygienist – Detailed Competencies

EQF level 7 Equivalent to Masters level	Professional or Senior Occupational Hygienist	Achieved by	Example assessment methods
Overall job scope and task description	Can demonstrate comprehensive broad expertise in the management of occupational hygiene including 1. Undertakes occupational risk assessments, including covering complex situations; 2. Develops strategies and protocols for occupational hygiene assessments, surveys and interprets the results; 3. Develops cost effective and reasonably practicable control methods and management strategies to prevent, control and manage health risks 4. Is able to develop, manage and implement occupational hygiene programmes; 5. Communicates effectively on the above with management, workers and other stakeholders; 6. Work in accordance with the code of ethics for the profession. NOTE Complex is defined as 'scenarios comprising complicated and/or interrelated elements of which the degree and nature of the relationship is imperfectly known'.	Minimum 4 years of practice demonstrated by employment or equivalent experience prior to taking certification. Note: The 4 years of practice are taken after certification at technical level and prior to sitting certification for Senior/Professional level or else 7 years of practice prior certification Examples of evidence of practice *: CV, references, publications, taking part in relevant research, teaching, associations or committees. Career progression: Obtaining the senior/professional certification demonstrates competence at a management level. This level is more advanced than the technician level . Senior occupational hygienists typically advise stakeholders in the comprehensive management of occupational hygiene.	Written examination and /or oral, experience portfolio, research, learning, dissertation

	Job and Task description	**Competence**	**Abilities: Knows, understands and applies**	**Outcome**
A	Undertakes occupational risk assessments for chemical, biological, physical hazards (e.g. noise, vibration, thermal environment) and ergonomics,	OH Knowledge and understanding	**Principles of workplace health exposure risks** • Recognises work environments where workers may be exposed to chemical, biological, physical agents and ergonomic hazards; • Identifies potential health hazards associated with processes, industries, and agents by observing tasks, processes, or sites and how they can present significant health risks to workers; • Recognises how exposures occur, and the ability to recognise all worker groups at risk; • Reviews the scientific literature to generate usable information on health effects caused by exposure to chemical, physical and biological agents in the workplace; • Applies physiological and toxicological principles to categorise hazards. **Work environments and processes**	• Can demonstrate highly specialized, advanced knowledge and original thinking in occupational risk assessment

			• Effectively uses observation and communication to aid in the understanding of unfamiliar work environments and processes; • Draws on experience of other work environments and processes to aid understanding of unfamiliar work environments and processes.	
B	Undertakes occupational risk assessments for chemical, biological, physical agents and ergonomic hazards.	General Evaluative skills (anticipating monitoring, reviewing and evaluate)	**Applies Knowledge and Professional Judgement to Evaluate Risks** • Understands the physiologic and toxicological interactions of physical, chemical, and biological agents, and ergonomic factors on worker health; • Uses knowledge of the hazards and the control measures to evaluate exposure risks; • Recognises and takes into account the potential for interaction (synergistic, antagonistic, potentiation and similar) from exposure to different hazards; • Determines the relationship between exposure and the potential adverse health effects of those exposures, using physiological, toxicological and epidemiological principles; • Uses relevant information and data in evaluation. **Evaluates the effectiveness of existing** engineering control systems and PPE programmes	• Can demonstrate expert critical insights into effective and meaningful anticipating, monitoring, review and evaluation in the field of occupational hygiene science and at the interface with other professional or scientific disciplines
C	Undertakes occupational risk assessments for chemical, biological, physical agents and ergonomic hazards.	Risk Assessment (investigation, Assessment, Analysis & diagnostic skills)	Assesses risks to worker health by analysing all relevant qualitative and quantitative exposure data using different risk assessment approaches and tools available e.g. Bayesian analysis, ergonomic models and professional judgment and by comparing appropriate exposure parameters to standards and guidelines, where available. **Assessment of Exposure** • Has advanced knowledge of measurement methods (including analytical methods, modelling and other emerging digital innovations) and their relevant parameters (e.g. limits of detection) that can influence the quality of the results; • Applies assessment of other routes of exposure such as skin risk assessment and synergistic exposures such as ototoxic hazards. **Assessment of Risk** • Integrates all relevant data when assessing levels of risk; • Makes sound and practical judgements based upon different data and information sources to evaluate level of risk.	• Can demonstrate expert critical insights into the knowledge issues in the field of occupational hygiene science and at the interface with other professional and scientific disciplines
D	Develops strategies and protocols for occupational hygiene assessments, surveys and interprets the results;	Research and Enquiry Methods	**Plans and/or assesses the effectiveness of different exposure assessment strategies in complex environments**. **Critical Thinking** • Understands the exposure scenario and identify appropriate risk assessment and monitoring strategies; • Assesses the quality of available evidence to understand uncertainty; • Reviews information and make judgements based upon evidence; • Uses reputable sources of information when making judgements; • Knows the difference between correlations and false correlations;	• Can engage in specialised or advanced enquiry and original thinking in relation to assessment and survey strategies in field/fields of occupational hygiene practice, which is at the forefront of the discipline.

			• Takes part in academic research and publishes findings where relevant. D**ata and Statistical Analysis** • Understanding of advanced statistical analysis such as Bayesian statistics; • Uses advanced statistical methods to plan complex sampling strategies and evaluate exposure data; • Uses data and Information for advanced evaluation for potential adverse health effects. **Occupational Epidemiology** • Epidemiology: techniques used to study the distribution of occupationally induced diseases and physiological conditions in workplaces and factors that influence their frequency; • Concepts of prospective and retrospective studies, morbidity and mortality and animal experimental studies, data and distribution of data; • • Plans collection of data and studies in a manner compatible with epidemiological studies.	
E	Develops cost effective and reasonably practicable control methods and management strategies to prevent, control and manage health risks;	Decision-making (problem-solving, planning, designing, negotiating courses of action)	Designs and implements effective exposure assessment strategies to assess the variability and magnitude of exposure including consideration of below: **Scientific Principles and Control** • Takes account of the chemical properties, biological, physical and ergonomic hazards when designing control strategies including technical, organisational and procedural measures. **Control of Exposure** • Identifies, proposes, selects effective and practical control options based upon the hierarchy of control and good occupational hygiene practice; • Identifies industry and/or other situation-specific barriers to the implementation of effective controls and to tailor advice accordingly; • Defines the priorities for intervention and selects the most appropriate control measure, or combination of control measures, for complex environments; • Evaluates elimination and substitution of hazards; • Designs integrated hazard control and risk reduction programmes; • Designs for adequate control or 'so far as reasonably practicable' (SFARP)/'as low as reasonably practicable' (ALARP), as appropriate; • Understands, designs and/or reviews control measures such as LEV systems; • Understands the difference between minimum legal compliance and good practice; • Understands the human factors element of control; • Assesses the degree of effectiveness of risk reduction programmes and their ongoing effectiveness; • Proposes topics for the information, education and training of workers at all levels on industrial hygiene issues; • Identifies performance indicators and monitoring systems for risk assessment, control and actions.	• Can demonstrate specialised problem-solving skills, required in practice or research, in developing innovative control methods and management strategies, including procedures, in the field of occupational hygiene science

			Selecting engineering controls • Identify the impact and select the most appropriate engineering controls for complex environments by understanding the characteristics of mitigation systems and collective and individual controls • Use cost-benefit analysis and severity ratings in the selection of engineering controls. • Identify maintenance and testing requirements for engineering controls. • Identify the best and most up-to-date technologies available and their advantages and disadvantages • Define action plans to ensure the maintenance and improvement of the levels of control achieved, considering the technical feasibility of the various actions. **Selecting Non-Engineering Controls** • Select the most appropriate and practicable non-engineering controls for complex environments. • Use time calculation methods for the reduction of risk resulting from procedural and organizational measures. • Assess the appropriateness and limitations of use of personal protective equipment (PPE); • Verify the efficiency and effectiveness of personal protective equipment (PPE); • Use standards and/or methods for the evaluation of the effectiveness of personal protective equipment.	
F	Is able to develop, manage and implement occupational hygiene programmes (including resources)	Implementation and Management Skills	**Management Systems** • Understands how worker health protection is incorporated in an organisational Health, Safety and Environment Management System; • Provides input into the development of HSSE Management systems based on recognized risk assessment methods, appropriate hazard controls, and other information (e.g., international and national standards, regulations). **Auditing** • Uses auditing as a key element of managing occupational health and safety within the workplace; • Works effectively as a member of multi-disciplinary audit teams. **Project Planning and Management** • Designs occupational hygiene projects to meet specific goals; • Manages occupational hygiene projects to ensure successful completion; • Understands the basic principles of project planning and delivery; • Uses the principles of cost-benefit analysis and applies them appropriately when making project decisions; • Identifies, acquires and manages resources required for occupational hygiene programmes. **Team Working** • Works effectively as a team member with both occupational hygiene professionals, other relevant disciplines and operational personnel; • Exercises leadership skills when leading teams;	• Can develop occupational hygiene management programmes and transform worker health protection in contexts that are complex, unpredictable, and require new strategic approaches.

			• Applies influencing and problem solving in a multidisciplinary environment.; • Mentors and peer reviews technician level and occupational hygienists in training. • **Interface with all levels of management** in the implementation of occupational hygiene programs.	
G	Is able to develop, manage and implement occupational hygiene recording systems	Professional Record Keeping	• Maintain accurate and suitable records • Make contemporaneous notes and describes the process in sufficient detail for the reader to understand the process. • Describe the existing exposure controls. • Maintain records in line with legal duties of confidentiality and good data management • Ensure that records are effective and accurate to enable collegiate and interprofessional working • Understand when it is appropriate, legal and necessary to disclose data and information in line with legal and professional obligations	• Can provide guidance and governance in relation to occupational hygiene recording systems and understand the core principles of occupational hygiene records management at a strategic level
H	Communicates effectively on worker health protection with management, workers and other stakeholders.	Communication and Reporting	• Knowledge of influencing strategies, change management, organisational psychology and strategic decision-making • Develops and applies effective communication strategies and obtain feedback to ensure that messages are correctly understood**.** • Communicates and influences all levels of the company / organisation to improve workplace health performance. **Advises and communicates** • the nature of hazard and risk effectively to the workforce; • the difference between minimum legal compliance and good practice; • presents exposure data in a way that is accessible to both workers and management; • required steps to control exposure effectively to senior managers and/or the workforce; • formally via clear, unambiguous and authoritative reports; • using most effective communications methods/channels; • orally and in writing, technical information on occupational hygiene issues to all levels of an organisation • **Advises and influences on culture and behaviour** programmes and the inclusion of worker health protection. • Attends and presents at conferences to peers	• Can create authoritative and definitive reports, publications and oral communication which provide leadership and insight in the field of occupational hygiene.

I	Communicates effectively on worker health protection with management, workers and other stakeholders.	Interprofessional Working	• **Works effectively with other health professionals** to improve worker health protection e.g. occupational physicians. • **Collaborates with environment professionals** on emission monitoring and control measures. • **Works with relevant environment and safety professionals** to develop emergency preparedness and response programmes. • **Works with workers as well as other technical, engineering and management** professionals in organisations to improve worker health protection.	• Maintains a professional network and can involve, develop and direct of other professionals to support transforming worker health protection programmes
J	Works in accordance with the code of ethics for the profession	Ethics, Professionalism and Judgement	**Ethical Principles** • Recognises situations in professional practice where ethical decisions need to be made; Applies the key ethical principles of beneficence, autonomy and justice and the relevant secondary principles derived from these when making decisions relating to professional practice. **Occupational Hygiene Professional Code of Ethics** • Works within their national professional occupational hygiene organisation code of ethics or, if that is not available the IOHA Code of Ethics.	• Can provide guidance and governance in relation to occupational hygiene ethics and can address complex and novel ethical and professional challenges

Key: * 'evidence of practice' and 'assessment methods' are examples. The framework is outcome based and countries can determine the 'how' these achieved i.e. what they accept as evidence of practice and specific assessment methods.

Advanced or Specialist in a Field of Occupational Hygiene – Detailed Competencies

EQF level 6 Equivalent to University diploma/ Bachelor's degree	Advanced or Specialist in a Field of Occupational Hygiene	Achieved by	Example assessment methods
Overall job scope and task description	Shows expertise of one or more specialist areas of occupational hygiene science or practice and specifically: 1. Has deep specialist understanding and can manage complex projects; 2. Conducts occupational hygiene assessments, surveys and interprets the results; 3. Develops innovative control methods and management strategies to prevent and control risk; 4. Communicates effectively with managers, supervisors, workers and other stakeholders; 5. Works in accordance with the code of ethics for the profession.	Minimum 4 years of practice demonstrated by employment or equivalent experience. Specialist/advanced technicians do not need the full scope of knowledge of occupational hygiene required for the technical level. Examples of specialist or advanced technicians could be in a specific topic e.g. asbestos, noise, legionella Examples of evidence of practice*: CV, references, publications, taking part in relevant research, teaching, associations or committees. Career progression: A specialist/advanced technician can demonstrate competence in the relevant elements at technician level as well as demonstrate advanced or specialist technical competencies.	Written examination and /or oral, experience portfolio, research, learning, dissertation

	Job and Task description	Competence	Abilities: Knows, understands and applies	Outcome
A	Has deep specialist understanding and can manage projects	OH Knowledge and understanding	• For specialist area(s): • Understands how exposures may present significant health risks; • Defines the survey strategy and the need for instrumental measurements, verify the existence and possibilities of using official or recognised databases; • Chooses sampling, analysis methods or instruments for measurement; • Identifies possible guide and limit values and criteria to refer to for the evaluation of the data; • Formulates the investigation protocol, including the measurement protocol if applicable, using the methods provided for in the technical reference standards or, in their absence, reliable and documented methods, indicating the source; • when necessary, measures levels of exposure to risk factors and evaluate the results of the measurements; • Estimates workers' exposure through an evaluation of the measurements made;	• Can demonstrate an advanced knowledge and critical understanding of a broad range of principles and practices of occupational hygiene OR Shows deep specialist knowledge of an area of a specialist area of occupational hygiene science or practice

			• Prepares the survey report and the final evaluation report on the basis of the results.	
B	Conducts occupational hygiene assessments, surveys and interprets the results;	Assessment (Investigation, Assessment, Analysis & Diagnostic skills)	For specialist area(s): • identifies and interprets information on the presence of health hazards; • defines the need or otherwise to carry out measures and assesses the appropriateness of alternative methods to measures; • identifies the appropriate investigation strategy on the basis the initial risk analysis: • screening measures; • plans the measurement campaign, choosing the method, analysis, instrumentation and deciding on locations, durations and number of measurements; • verifies the need for measurements in-depth monitoring, of risk mapping in specific areas; • defining the methods of sampling for the purposes of their representativeness (number, where how, when, for how long); • measuring levels of exposure to physical agents, choosing the most suitable metrological and statistical parameters best suited to the case under consideration and determining the consequently determining the setting of the instruments; • prepares the survey protocol and conducts survey; • identifies the most appropriate guide values for the purpose of correct evaluation of results; • post-processing the results selecting the significant ones and taking into account measurement uncertainties; • calculates exposure levels of workers by applying the algorithms provided by the standards and taking into account the uncertainties of calculation; • identifies useful indicators for an evaluation in the absence of defined reference values (e.g., sampling biological agents) or for a better interpretation of results (e.g. chemical agents specific agents); • prepares the survey report and reporting of results; • interprets the results of the survey; • prepares an evaluation report on the results.	• Can demonstrate expert critical insights into the knowledge issues in the field of occupational hygiene science and at the interface with other professional or scientific disciplines
C	Conducts occupational hygiene assessments, surveys and interprets the results;	Research Methods	For specialist area(s): • The latest regulations, technical standards, guidelines reference, including the main guiding values, for in-depth risk assessment; • The meaning of the information present in the safety data sheet (SDS), the extended safety data sheet (eSDS) and the exposure scenarios; • The reference guidelines, operational operating manuals and best practices including the main existing and recognised databases as reliable, dealing with the physical risks under investigation and assessment; • The methods of sampling and analysis for the measurement; • The latest published research of significance.	• Can demonstrate an advanced knowledge and critical understanding of the management of data and information sources to inform the analysis and practice of occupational hygiene OR Shows deep critical understanding of the management of data and information sources to inform the analysis of an specific area of occupational

				hygiene science or practice
D	Develops innovative control methods and management strategies to prevent and control risk	Decision-making (problem-solving, planning, designing, negotiation of courses of action)	Within specialist area(s): • Controls exposure via innovative, effective control options based on the hierarchy of control and good practice; • Comprehensive understanding of control strategy including for example frequency based selection of hearing protection and saturation time of cartridges; • identifies and proposes specialist control strategies; • Understands and assesses the degree of effectiveness of different control options.	• Can manage complex technical activities or projects, taking responsibility for decision-making in sometimes unpredictable practical occupational hygiene contexts OR Shows deep specialist knowledge of management and decision-making in a specialist area of occupational hygiene science or practice

E	Conducts occupational hygiene assessments, surveys and interprets the results;	General Evaluative skills (monitoring, reviewing and evaluate)	For specialist area(s): • Analytical method and sampling equipment as well as measuring instruments and their limits of use, probes, filters, software for analysing and post processing of measured data, software for modelling the propagation of risk agents; • The main biological indicators of exposure, where available, to be used in the biological monitoring biological monitoring of chemical agents and their meaning; • Indicators useful for an assessment in the absence of defined reference values (e.g., biological agent sampling) or for a better interpretation of results (e.g. specific chemical agents); • The post-processing software of the measured data; • The uncertainties of the systems and measurement methods of the physical agents physical agents under evaluation; • The calculation procedures and methods of evaluating the results; • The uncertainties of the systems and methods of calculating the weighted average levels weighted average levels being assessed.	• Can demonstrate advanced skills and mastery of core techniques required to solve complex and unpredictable problems to inform the monitoring, review and evaluation of occupational hygiene practice OR Shows deep specialist monitoring and evaluation skills in a specialist area of occupational hygiene science or practice
F	Has deep specialist understanding and can manage projects	Implementation and Management Skills (Implementing and Taking Action)	For specialist area(s), manage projects: • Knowing how to define the scope of investigation for qualitative-quantitative determination of the risk agents present in the working context considered; • Being able to choose the most appropriate reference values, parameters or limit values for the identified risk agents; • Be able to estimate or calculate the exposure of workers through the evaluation of the results of measurements and prepare an evaluation report on the results findings. Include where relevant data from databases; • Mentors technical level hygienist.	• Can direct the work of non-hygienists and take responsibility for managing professional development of individuals and groups to develop appropriate responses to occupational hygiene problems OR Shows deep specialist knowledge of implementation and management in the context of a specialist area of occupational hygiene science or practice
G	Communicates effectively with managers, supervisors, workers and other stakeholders	Communication and Reporting	For specialist area(s) communicates: • Specific hazards, impact on the body, risks to health and control methods; • Methodology for assessment; • Latest research; • Via written reports, including priorities and options	• Can consistently produce technically accurate and evidentially grounded reports that explain complex occupational hygiene problems to all intended audiences and are capable of standing up to critical

				interrogation by peers OR Shows advanced specialist communication or evidencing skills in a specialist area of occupational hygiene science or practice
H	Communicates effectively with managers, supervisors, workers and other stakeholders.	Interprofessional Working	• Communicates specialist area(s) to key stakeholders including: • Other health professions; • Customers, managers, supervisors, workers representatives and others; • Regulators. For specialist area(s): • Translate client needs into realistic goals; • Explain choices, alternatives and consequences; openly discuss resistance. • Recognise and manage conflicting interests; • Applies basic principles of cost-benefit analysis, risk prioritisation and implementation strategies; • Monitor progresses; • Uses different communication channels, such as trainings, toolbox talks, etc.	• Can work under the guidance of other professionals and also guide their work to respond effectively and constructively to complex and sometimes unpredictable occupational hygiene problems OR Shows deep specialist knowledge of working within a distinct and complex area of interprofessional workplace health practice or science, perhaps as a result of advanced cross-qualification in another related discipline
I	Works in accordance with the code of ethics for the profession	Ethics, Professionalism and Judgement	• Understands and demonstrates in application the importance of, and adherence to a relevant Code of Ethics	• Is a proponent of ethical values in occupational hygiene and is capable of identifying, managing and addressing the ethical and professional problems in day-to-day occupational hygiene practice
J	Conducts occupational hygiene assessments, surveys and interprets the results;	Professional Record Keeping	• Maintains appropriate, legal and accurate records which form a sufficient basis for effective professional practice.	• Can accurately and effectively record information appropriate for occupational hygiene and understand the

				management and regulatory implications of doing so