The British Occupational Hygiene Society
Faculty of Occupational Hygiene

MODULE SYLLABUS

M304 – Assessments under the COSHH Regulations

AIM: To give practical guidance on how risks to health can be assessed, when using substances hazardous to health.

On successful completion of this module the student should be able to:

- appreciate the nature of risk and how it is created;
- gather and evaluate critical information;
- use this information to make a rational assessment of risk;
- understand the principles of the control of risk;
- conduct risk assessments for the purposes of COSHH.

Note: This course is designed to run over a two day period.

CONTENT:

	TOPIC	TIME ALLOCATION
1.	BACKGROUND	5%
2.	LEGAL ASPECTS	15%
3.	FUNDAMENTAL PRINCIPLES	20%
4.	MAKING AN ASSESSMENT	50%
5.	WORKPLACE CONTROL	10%

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.

RECOMMENDED DOCUMENTATION

i) Health and Safety at Work etc Act 1974
ii) The COSHH Regulations 2002 (as amended 2004) ACOP and Guidance (Fifth Edition)
iii) HSE Guidance Note EH40 Workplace Exposure Limits (Issued Annually)
iv) HSE Guidance Note HSG97 (2004) A Step by Step Guide to COSHH Assessments
v) HSE Guidance Note HSG193 (2003) COSHH Essentials. Easy Steps to Control Chemicals
vi) HSE Guidance Note HSG167 (1997) Biological Monitoring in the Workplace
vii) The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002

1. BACKGROUND (5%)

1.1 Hazard and Risk

1.1.1 Formal definition of hazard and risk.

1.1.2 Common examples to illustrate the meaning of and difference between hazard and risk.

Educational Objectives

The student should know the difference between hazard and risk and should appreciate the nature of risk and how it is created.

2. LEGAL ASPECTS (15%)

2.1 Health and Safety at Work etc. Act 1974 (HASAWA)

2.1.1 The role of HASAWA as enabling legislation.

2.1.2 Section 2 - inference for assessment, other key provisions.

2.2 The COSHH Regulations 2002 (as amended 2004)

2.2.1 The role of the Regulations (ie. to prevent occupational ill health).

2.2.2 Scope of the Regulations (including definitions of substances hazardous to health).

2.2.3 Key provisions, ie. assessment, prevention, control, use of controls, maintenance, examination and test of controls, monitoring, health surveillance, information, instruction and training. Accidents, incidents and emergencies.

2.2.4 COSHH 2002 ACOP (as amended 2004)and Guidance (5)

2.3 Guidance Notes

2.3.1 HSE Guidance Note EH40 (as amended) (Issued Annually).

2.3.2 HSE Guidance Note HSG97 (1992).

2.3.3 HSE Guidance Note HSG193 (2003).

Educational Objectives

The student should understand the legal framework for risk assessment and be familiar with key provisions.

3. FUNDAMENTAL PRINCIPLES (20%)

3.1 Toxicology

3.1.1 Routes of entry, target organs, dose effects, classification of toxic effect, signs and symptoms, dose response.

3.1.2 Toxicity testing and interpretation of toxicological data.

3.1.3 Terminology/nomenclature (IUPAC, CAS, EINECS, trade names).

3.2 Monitoring Techniques

3.2.1 Principles of air monitoring and biological monitoring. HS(G)167 (1997). MDHS method series and other acceptable methods – NIOSH, OSHA, etc.

3.2.2 Other sampling techniques (bulk, surface) and their application.

3.3 Criteria and Standards

3.3.1 Inhalation exposure, EH 40, WELs.

3.3.2 Other limits including asbestos, control and action levels, OEL for lead.

3.3.3 Application of standards. Personal exposure, time weighting, definitions, terminology, units, 'Sk', 'Sen' notations.

3.3.4 Problems, mixed exposure, action for non-published standards, derivation of limits, criteria document summaries, individual susceptibility; reference should be made to the mixed exposure calculation for hydrocarbons.

3.3.5 Biological Monitoring Guidance Values and Other Indices and their application.

3.4 Interpretation of Results

3.4.1 Accuracy and precision of results. Statistical analysis of results, including representative nature of data. Use of geometric mean. alidity of data. Relationship with OEL used. Planning monitoring to ensure that limit of detection is reached.

Educational Objectives

The student should possesses sufficient knowledge and understanding to allow correct interpretation of relevant information.

4. MAKING AN ASSESSMENT (50%)

4.1 Scope of an Assessment under COSHH

The meaning of "suitable and sufficient" assessment. Five major tasks to be carried out - gathering information about the work, evaluating the risks to health, deciding on control options to comply with Regulations 7-13 (including the use of COSHH Essentials), recording assessments, frequency of review. Other methods of assessment.

4.2 Gathering Information

4.2.1 Identification of relevant hazardous substances including intermediates and by-products.

General sources of information - texts, journals, microfiche and computer databases, HSE, trade literature, other.

Specific sources of information - data sheets, requirement for suppliers to provide information, The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002, Interpretation of safety data sheets. Use of specialist advice.

4.2.2 Identification of critical aspects of process, task and local conditions (e.g. confined spaces). Source identification. Nature and circumstance of contaminant release, fugitive emissions, variability of production, and equipment. Ventilation, storage, transport, transfer, use, disposal, maintenance. Arrangements covering accidents, incidents and emergencies.

4.2.3 Human variability
Work method and technique, idiosyncrasies. Existing provision of information, instruction and training.

4.2.4 Nature of exposure (including process workers, maintenance, peripatetic workers, visitors, others). Identifying persons exposed, circumstances of exposure (when, where, who); variability of exposure.

4.2.5 Review existing exposure data. Identify whether there is a need for environmental monitoring to quantify exposure. Evaluate options. Specify sampling criteria, if required; sampling protocol; who to monitor, when to monitor, where, what circumstances. Consider need for health surveillance, biological monitoring, biological effect monitoring, other assays. Consideration of appropriate standards; limitations of monitoring in assessing exposure.

4.2.6 Assessment of new processes/work not yet in operation. Gathering information on anticipated procedures, including commissioning, simulated breakdowns and emergencies. Information from raw material and equipment suppliers. Experience of similar processes - employers, employees and trade associations.

4.3 Risk Evaluation

4.3.1 Review of hazard data, (ie. data collected in 4.2.1.)

4.3.2 Review of exposure data:

consideration of data collected in 4.2.2 - 4.2.5.

- interpretation of monitoring results, reliability of method, reliability of results, representivity, assessing variability

- application of results to circumstances not monitored, consequences of control failure, maintenance or cleaning operations

- use of example case studies.

4.3.3 Application of exposure limits:

- basis and reliability of standards
- evaluation of risk
- evaluation of adequacy of control under COSHH

PRACTICAL

The use of case studies, syndicate work, and practical exercises under experienced supervision will form an important part of this section.

Educational Objectives

The student should appreciate factors affecting risk and should be able to identify and critically evaluate relevant information and source.

5. WORKPLACE CONTROL (10%)

5.1 Hierarchy of Control

Elimination, substitution (substance, form of substance), design and process modification, enclosure, isolation, ventilation, supervision, modification of work method, work systems (include permits), personal hygiene, education and training, supervision, PPE.

5.2 Assessing Effectiveness of Control

Qualitative and quantitative assessment techniques.

5.3 Maintaining Effectiveness of Control

Obligation under COSHH for establishing procedures for servicing, maintenance, examination and testing, regular checks, reliability, record keeping. Reference to be made to breathing air quality for airline fed RPE, respirator inspections and fit testing.

Educational Objectives

The student should be able to appreciate the full range of control options, their application, the importance of effective control and systems to ensure control is maintained.