

## MODULE SYLLABUS

### M206 – SKIN at WORK

**Aim:** Provide an in-depth knowledge of how to prevent the damage to health due to the interaction between the skin and the working environment.

This course is designed for all those who have to ensure that workplace conditions, and in particular the use of chemicals, does not cause damage to health due to skin exposure. This will include occupational hygienists, occupational physicians and nurses, health and safety practitioners.

**Learning Outcome:** A detailed understanding of the health effects of skin exposure, techniques for the assessment of dermal exposure and the methods available to control exposure and a theoretical and practical knowledge to enable the candidate to design and implement effective control of occupational dermal exposure to chemicals to minimise damage to health through work.

**Prior Knowledge:** Candidates for this course are expected to be aware of the contents of HSG 262 [Managing skin exposure risks at work]. *This course is designed as a detailed course on Occupational Skin Management and builds upon the material covered in P801 Introduction to the Control of Dermal Exposure at Work [Basic Principles of Occupational Skin Management]. However P801 is not a pre-requisite for this module.*

**Course length:** It is envisaged that this course will be conducted over 5 days which includes the examination. This course will require approximately 32 hours' study time, of which at least 24 hours will be taught (teaching and practical). The additional study time will be required in the candidates' own time.

Content:	Topic	Time Allocation
	<b>1 Introduction</b>	
	<b>2 The law and the skin</b>	<b>5%</b>
	<b>3 Skin physiology</b>	<b>10%</b>
	<b>4 Health effects of skin exposure</b>	<b>15%</b>
	<b>5 Risk assessment for skin exposure</b>	<b>20%</b>
	<b>6 Managing skin exposure risks</b>	<b>20%</b>
	<b>7 The role of skin care</b>	<b>5%</b>
	<b>8 Skin health surveillance</b>	<b>5%</b>
	<b>9 Developing and maintaining an occupational skin management system</b>	<b>5%</b>
	<b>10 Investigation of suspected case of damage to health due to skin exposure</b>	<b>5%</b>
	<b>11 Practical case studies</b>	<b>10%</b>

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

#### 1 Introduction

Ensuring that skin exposure control measures in place are adequate to prevent or minimise damage to health through work.

## 2 The Law and the Skin [5%]

The Regulations and Guidance that have an implication on the control of skin exposure include:

- The Health and Safety at Work etc. Act 1974 and its subsequent amendments
- COSHH [*Control of Substances Hazardous to Health Regulations 2002 (as amended)*]
- Control of Lead at Work Regulations 2002
- Management of Health and Safety at Work Regulations 1999
- CHIP and GHS, dangerous substances
- REACH, [*The implications of REACH on the management of skin exposure in a workplace*]
- PPE [*Personal Protective Equipment Regulations 2002 - supply of PPE*]
- Regulations covering pesticides, biocides, veterinary medicines and cosmetic products
- Physical agents (vibration, radiation etc)
- RIDDOR

## 3 Skin Physiology [10%]

The skin as an organ and as a barrier.

How does our skin function, both as an organ and as a barrier?

The structure of human skin: an explanation of the three major layers. What are the major components in each of these layers? What are the major functions of these components? Other skin components, e.g. sweat glands, hair follicles.

The protective functions of human skin: This will include the eight major functions of the skin and the factors influencing these functions.

- Protecting the body against chemicals
- Protecting the body from invasion by pathogenic micro-organisms
- Protecting against physical agents including the rays of the sun
- Protecting against mechanical forces (mechanical stress) and shock
- Serving in temperature regulation and water loss management
- Protecting internal organs
- Initiating synthesis of Vitamin D3
- Providing sensory functions touch pain heat cold etc.

Skin and chemicals; how chemicals permeate through the skin. Diffusion and the equations describing steady-state diffusion. Physical-chemical parameters influencing dermal uptake of chemicals.

The importance of keeping the skin supple and elastic to accommodate movement. The social importance of skin appearance and the psychological impact of skin disease.

## 4 Health Effects of Skin Exposure [15%]

- The interaction between the skin and the environment and the potential effects on health.
- The effect of the both physical and chemical conditions on the skin and the resulting effects on health, including systemic effects, irritant and allergic reactions, and other skin diseases that may result from such exposure. The complications of non-occupational and occupational factors. The significance of psychosomatic conditions, biological hazards and skin disease caused by other routes of exposure.
- A basic knowledge of diseases caused by dermal exposure to chemicals including definitions of various terms used to explain skin diseases; types of skin diseases; an explanation of the process involved in the development of contact dermatitis (irritant and allergic); an introduction to systemic diseases associated with skin uptake of chemicals.
- An understanding of the types of occupations and tasks associated with skin exposure and systemic diseases caused by dermal exposure to chemicals including the materials commonly

associated with both local and systemic effects.

## **5 Risk Assessment for Skin Exposure [20%]**

- Defining the risk assessment as it relates to potential skin exposure.
- Identification of the real chemical hazards arising from the use of chemicals in a workplace. An understanding of dermal hazard identification methods, including approaches for the identification of chemical and other hazards relevant to skin exposure.
- A practical understanding of dermal exposure pathways, how skin is exposed to chemicals and explanation of different pathways. Defining the tools available for identifying and quantifying skin exposure
- Development of a structured and consistent approach to evaluating the risk and significance of damage to health arising out of the effect of skin exposure to the working environment.
- Dermal exposure monitoring, its place in risk management, and the associated practical and technical issues. The methods used to assess the extent of dermal exposure. Interception, removal, tracer and skin stripping methods; advantages and disadvantages of each. The role of biological monitoring in assessing skin exposure.
- Other factors related to risk of skin disease, e.g. UV exposure, heat, skin abrasion.
- Evaluation of the relative importance of dermal exposure versus inhalation exposure for systemic toxins.
- Introduction to exposure modelling and estimation and other relevant approaches.
- The role of hand contamination in contributing to ingestion exposure via hand-to-mouth contacts.
- Practical systems for ranking risks.

## **6 Managing Skin Exposure Risks [20%]**

- Managing risks arising from the interaction between skin and the environment.
- Consideration of the various options available for the elimination or control of exposure to workplace conditions, with special attention being paid to chemical exposure and its control.
- The hierarchy of control will be examined with special regard to how it can be applied to skin exposure.
- Examples of cases where technical and process changes have adequately controlled exposure will be discussed.
- The role of personal protective equipment, and in particular the selection and use of protective clothing and gloves, will be considered in detail. [including allergic reactions, permeation of materials, standards making, efficiency and cost.]
- Appropriate training in the use PPE and other control measures and the proper techniques for its donning and removal.

## **7 The Role of Skin Care [5%]**

- Personal hygiene plays a major role in helping to prevent damage to health due to workplace skin exposure. The role and the rules for personal hygiene will be explained, including the selection and use of skin care products and the design and equipping of hygiene facilities for optimum effect.
- The role of personal hygiene in the prevention of cross infection will also be covered.

## **8 Skin Health Surveillance [5%]**

- Skin health surveillance may be a legal requirement in some workplaces. In others it may be of considerable benefit.
- Consideration of when skin health surveillance should be considered, the different techniques available and when and how different techniques may be applied.
- Consideration will also be given to how data obtained through skin health surveillance can be used to optimise the skin management system. Confidentiality requirements need to be considered.

**9 Developing and Maintaining an Occupational Skin Management System [5%]**

- The requirements to develop and maintain an effective skin management system, who should be involved and the role of education and training and the monitoring of results.
- The system needs to minimise the risk of damage to health and helps to ensure regulatory compliance.

**10 Investigating a Suspected Case of Damage to Health due to Skin Exposure [5%] [ NOT EXAMINED]**

However effective the skin management system there can never be a guarantee that a skin problem will never arise. When one does, then it is important that it is correctly investigated. A structured approach to such an investigation, including liaison with medical and technical specialists (dermatologists, occupational physicians, immunologists, toxicologists, etc.) will be explained. Reporting procedures under RIDDOR and how and where to get advice.

**11 Practical Case Studies [10%] [NOT EXAMINED]**

*Example case studies are an important part of this course and the type of studies are outlined as Case study 1 and 2:*

Case study 1

Participants will be provided with a description of a workplace and be asked to identify hazards and subsequent risks of damage to health and to rank these in order of significance

Case study 2

Participants will be provided with examples where damage to health would occur due to skin exposure unless appropriate controls are introduced. They will be asked to decide what controls might be appropriate. (Information on equipment, PPE, etc. will be made available)

**Suggested Further Reading:**

- Managing skin exposure risks at work HSG 262 ISBN 978 0 7176 6309 5
- Controlling Skin Exposure Sithamparanadarajah R, ISBN 978-1-906674-00-7
- Dermatology, an illustrated colour text, David J. Gawkrödger, Churchill Livingstone, ISBN 0-443-04301-9
- Essentials of Occupational Skin Management, C.Packham, Limited Edition Press, ISBN 1-85988-045-2
- Reference to the HSE web site is also a useful source of information. [www.hse.gov.uk/skin](http://www.hse.gov.uk/skin)

**Examination /Assessment**

The assessment for this module consists of two examination papers:

1. 40 short-answer questions, to be answered in 90 minutes
2. 5 short-essay questions (from a choice of 8), to be answered in 45 minutes. Answers should typically be no more than half a page in length. Candidates can use diagrams and bullet points in their answers. Some questions will require calculations. Candidates must show all of their calculations for these questions.

To obtain a pass it is necessary to obtain a mark of 50% (70% for a credit) in each paper.