

## **COSHH 2002 (as amended) and effective control of exposure**

**By Paul Evans and Mark Piney**

### **What's changed?**

The Control of Substances Hazardous to Health (Amendment) regulations 2004 introduced changes to the COSHH Regulations (2002). The main changes to the Regulations surround the provision of a new framework for adequate control with the introduction of the eight principles of good control practice and the new Workplace Exposure Limits (WEL). These changes came into effect on the 6<sup>th</sup> April 2005. Clarification is also provided on the duty to maintain exposure control measures. Other changes include the revision and addition of some definitions, restrictions relating to cement and a revision of the disapplication of COSHH to Merchant ships but these will not be considered in this article. Instead it will concentrate on changes to the definition of 'adequate control', the duty to achieve it and the duty to maintain it. A full summary of these changes, and the changes introduced in the 2002 Regulations, can be found at the beginning of the COSHH Approved Code of Practice (ACoP), (L5), pages 1- 4.

### **Why change?**

One of the main drivers behind the 2004 amendments to the COSHH Regulations was a heightened awareness of a number of problems associated with the existing Occupational Exposure Limit (OEL) Framework that consisted of Occupational Exposure Standards (OESs) and Maximum Exposure Limits (MELs).

Research indicated that many employers, particularly those in small and medium sized enterprises (SMEs) were unaware of OELs and, of those who were aware of them, many were unable to determine whether exposure levels within their workplaces complied with the relevant limits. Other concerns included the perception that OESs were 'safe' limits at which no ill health effects would occur. This perception was not appropriate in many cases. Experience also highlighted that the criteria used to determine the OESs and MELs were not wide enough in scope so that some substances failed to meet the criteria for either type of limit.

As a result of these concerns, HSE and some key external stakeholders considered that the existing OEL framework had not achieved its full potential as a tool to aid employers control exposure to hazardous substances. A subgroup of HSC's Advisory Committee on Toxic Substances (ACTS) was set up to consider this and the committee set seven key objectives which the new framework would need to meet:

1. Control risks to health
2. Easily understood
3. Legally enforceable
4. Comprehensive
5. EU friendly
6. Provide incentive to reduce exposure

## 7. Able to accommodate new technology

There followed an extensive period of consultation on proposals to introduce a new OEL Framework that culminated in the recent amendments to the COSHH Regulations.

## Work-related disease in the UK

The HSE-commissioned reporting schemes, collectively known as THOR (The Health and Occupation Reporting network), and the regular Labour Force Survey (LFS) indicate that a large number of people in Great Britain still suffer work-related health effects and disease due to over-exposure to substances hazardous to health (see, for instance, <http://www.hse.gov.uk/statistics/overall/ohsb0304.pdf> and <http://www.hse.gov.uk/statistics/overall/ohsb0405.htm> and <http://www.hse.gov.uk/statistics/tables/swit3.htm> ).

This damage to people's health and burden on UK business and economy occurs because, put simply, exposure control measures are not adequate. The solution, again put simply, is to identify practical and effective control measures, implement them and maintain them. Simply said - but not always so easily achieved. HSE is attempting, through its Disease Reduction Programme (DRP) to have a measurable and demonstrable impact on the main causes of work-related ill-health by targeting certain types of occupational disease and the main groups at risk. This is part of an overall strategy on health at work (see <http://www.hse.gov.uk/aboutus/plans/healthagenda.htm>). The specific legislation with which employers should comply, and against which HSE and Local Authority inspectors make judgements, is the Control of Substances Hazardous to Health (COSHH) Regulations. Over the last few years, these Regulations have been reviewed, modified and refocused.

## The COSHH Hierarchy

Whilst the emphasis of this article is on highlighting the changes to the COSHH Regulations, it is also important to note what remains the same. What has come to be known as the COSHH hierarchy remains firmly embedded in these amended Regulations. The employer's overriding, first priority is to consider how to prevent employees being exposed to substances hazardous to health (ACoP paragraphs 89-91). This can be achieved by a variety of means including eliminating the use or production of the substance; or substituting the substance with a non-hazardous or less hazardous one; and modification of a process or substance to reduce emission or release (ACoP paragraphs 93-96).

Where prevention of exposure to hazardous substances is not reasonably practicable, employers should adequately control it. The framework for addressing control of exposure is new and will be the main focus of this article.

## Adequate control

The key changes shift the emphasis towards using good control practice. In short, control is only considered adequate [Regulation 7(7)] if:

(a) the principles of good control practice are applied;

- (b) any workplace exposure limit is not exceeded; and
- (c) for a substance which causes asthma, cancer or heritable genetic damage, exposure is reduced as low as is reasonably practicable.

Regulation 7(7) puts the primary emphasis for achieving adequate control on the application of the eight Principles introduced in Schedule 2A of the Regulations. This is followed by a duty not to exceed any relevant Workplace Exposure Limit (WEL).

## **Principles of good control practice**

*“To be effective in the long-term, control measures must be practical, workable and sustainable”.* ACoP paragraph 297

The use of good control practice has always been implicit in the COSHH Regulations. Now, Regulation 7(7) explicitly requires the principles to be followed to develop effective control measures. The Principles of good control practice are therefore part of the regulations and are presented in Schedule 2A (L5 page 88 onwards) together with guidance that fleshes out their meaning. The introductory guidance is explicit about how the principles should be used. These Principles should be regarded as a ‘package’. All the Principles must be properly applied in order to achieve effective, reliable and sustainable control of exposure. Employers cannot pick and choose which Principles to apply – they are all important in achieving adequate control. Also, the Principles are not listed in rank order: Principle (a) is not more important than Principle (h), although there is a logical progression in how they are presented and should be considered.

## **Principles of Good Control Practice**

- a) Design and operate processes to minimise emission, release and spread of contaminants**
- b) Take into account all relevant routes of exposure - inhalation, skin absorption and ingestion - when developing control measures**
- c) Control exposure by measures proportionate to the health risk**
- d) Choose most effective and reliable control options which minimise escape and spread of contaminant from sources**
- e) Where adequate control is not reasonably practicable by other means, provide suitable PPE in combination with other measures**
- f) Check and review regularly, all elements of control measures for continuing effectiveness**
- g) Inform & train all employees on hazards and risks from substances and use of control measures**
- h) Ensure introduction of control measures does not increase overall risk**

As an aid to people applying the principles, HSE is developing a *“Summary points and Checklist”* form. This will, eventually, be available on the HSE website but, in the meantime, BOHS has posted the current draft version on the Society’s Website (<http://www.bohs.org/newsArticle.aspx?newsItem=36>). The intention is to produce a

spreadsheet version which will be less repetitive to complete. We would welcome comments from people who use the Checklist on how it can be modified and improved (contact paul.evans@hse.gsi.gov.uk).

## **Workplace Exposure Limits (WELs)**

Under the old OEL framework, the criteria for setting OESs and WELs were different. Also, the duties for complying with OESs and MELs were different. WELs replace the two previous types of limits. The duty is now much simpler – WELs should not be exceeded. All MELs were transferred across to the new system as WELs. However, when reviewing OESs to assess whether they matched the criteria for a WEL, evidence showed that around 100 substances are likely to be harmful at, or near, the OES value. Limits for these substances have been deleted. Guidance on how substances with deleted OESs should be controlled is available from COSHH essentials (<http://www.coshh-essentials.org.uk>) or, for some substances, Chemical Hazard Alert Notices (CHANs) or other guidance issued by HSE. Table 1 identifies four different circumstances which cover the changes to the OEL system.

The COSHH ACoP and Guidance contain important messages about WELs, which will be familiar to many occupational hygienists, including:

*“WELs should not be considered a hard and fast line between safe and unsafe. The principles require the degree to which exposure is reduced below the WEL to be proportionate to the health risk.”* Para 120 and

*“The absence of a substance from the list of WELs does not mean that it is safe. Many substances do not have a WEL. For these substances, employers should apply the principles of good practice with control of substances hazardous to health to control exposure to a level to which nearly all the working population could be exposed, day after day at work, without adverse effects on health.”* Para 129

All common sense and, we hope, familiar, to most. But it may be news to those people who see a substance on an OEL list as somehow more ‘dangerous’ than substances not on a list. And who regard exposures just above the limit as ‘dangerous’ and those just below it as safe. This latter fallacy has been around since the ACGIH set Threshold Limit Values and first tried to challenge the myth in 1958 with the first TLV Preface!

## **The Principles and limits**

Regulation 7(7) puts the primary emphasis for achieving adequate control on the application of the eight Principles introduced in Schedule 2A. This is followed by a duty not to exceed any relevant WEL. The reasoning behind this shift of emphasis away from limits onto the Principles of good control practice is partly to tackle the many difficulties associated with measuring and demonstrating compliance with limits that are well known and have already been mentioned in the introductory paragraphs. Also, the intention of the ACTS Working Group was to shift the emphasis in the application of COSHH more towards consideration of exposure control measures. The Principles are a large part of the mechanism by which the change of emphasis occurs.

In summary, if the Principles of good control practice are being systematically and properly applied, then any relevant WEL should, by definition, be complied with and adequate

control achieved. The converse is equally true: if there is evidence of a WEL being exceeded then one or more of the Principles have not been properly applied.

## Maintaining control

*“Control measure means a measure taken to reduce exposure to a substance hazardous to health including the provision of systems of work and supervision, cleaning of workplaces, premises, plant and equipment, the provision and use of engineering controls and personal protective equipment” (Regulation 2).*

In other words, a control measure is **any** measure used to reduce exposure whether it is connected with the hardware or software of exposure control.

Regulation 9 (1), on maintenance, examination and testing, has changed to properly reflect the Regulation title wording which refers to *“control measures”*. All aspects and elements of a set of control measures are covered:

*“Every employer who provides any control measure to meet the requirements of Regulation 7 shall ensure that –*

- (a) In the case of plant and equipment, including engineering controls and personal protective equipment, it is maintained in an efficient state, in efficient working order, in good repair and in a clean condition; and*
- (b) In the case of the provision of systems of work and supervision and of any other measure, it is reviewed at suitable intervals and revised if necessary”*

Regulation 9.1(a) can be seen as covering the so-called “hardware”, and Regulation 9.1(b) the “software”, of control measures. In addition to a more complete and rounded definition of the elements of control measures to be checked and maintained, the guidance is clear that the frequency with which this should be done will depend on the likelihood of the deterioration of that particular element of the control measure and its importance. In any event, it should be done at intervals of not more than one year (Guidance paragraph 160).

And maintenance now has a broader definition and includes visual checks on any equipment relevant to the control of exposure, inspection, servicing, observation of systems of work, and any remedial work to maintain the effectiveness of control measures (Guidance paragraph 161).

The clarification of the range of aspects and elements to check means that employers must consider, define, describe, check and maintain all the critical elements that go to make up an effective set of control measures. The focus cannot be placed simply on the hardware of control, as it has often been in the past. People need to know what control measures, in the round, consist of. And what part the systems of work, and methods of working, play in minimising their exposure. And if they are to be workable, sustainable systems, then the people who have to use them, and be protected by them, need to be consulted and involved in developing them.

## SMEs and COSHH

The vast majority of businesses in the UK are SMEs, and the vast majority of these are micro-businesses. Managers or owners of such enterprises usually do everything themselves. They tend not to employ health and safety professionals. When it comes to minimising the health and safety risks to their employees, such enterprises usually look to

their suppliers or competitors for advice and tend to follow the prevailing control culture of their sector/industry. They don't cope well with performance-based regulations such as COSHH which, when first launched, expected everyone to rigidly go down the assessment, control and review route. Most small businesses want to be told what to do whether by their supplier, advisor or friendly, local inspector. Some are innovative and can work it out for themselves but most want to be told or at least be pointed in the right direction. HSE has developed COSHH Essentials for such enterprises to make it easier to get to effective exposure control; some industry sectors have produced their own guidance; and occupational hygiene professionals can offer good advice too. Regulation 7 guidance also makes it clear that there is more than one route for getting adequate control and illustrates two such routes – one for SMEs/non-expert and one for health and safety professionals. The text makes it clear there are other valid routes.

## Competence

Where employers are dealing with complex exposure problems and/or high-hazard substances they may need to take advice. The need for employers to assess the competence of those that advise them has been present in the Regulations for some time and is specifically mentioned in COSHH 2002. But the issue is highlighted in *COSHH 2002 (as amended)* at several points:

*“Employers must ensure that whoever carries out the assessment and provides advice on prevention and control of exposure is competent to do so...”*. Regulation 12(4), ACoP Regulation 6 paragraph 58.

*“Whoever designs control measures needs appropriate knowledge, skills and experience”*. Principle (d) Guidance paragraph 335.

*“Anyone who checks on the effectiveness of any element of a control measure should have the competence to do so. The degree of theoretical and practical knowledge required will increase with the likelihood of control failure, the seriousness of the consequences, and the complexity of the control measure.”* Guidance Regulation 9 paragraph 162

*“Employers must ensure that whoever carries out maintenance, examination and tests is competent to do so in accordance with regulation 12 (4).”* Regulation 9, Paragraph 167

Not only must the people who advise on assessments and control measures be competent but so must those who check and test the measures. Advisors have other legal duties as well. If an employer has taken reasonable steps to obtain competent advice and he/she has been misled by the advisor, causing the employer to breach his/her duties, and the breaches are relatively serious and people's health and/or safety may have been put at risk then the enforcing authority may consider prosecution of the advisor under Section 36.1 of the Health and Safety at Work Act (1974). See Piney (2002)<sup>1</sup> for more detail]

## Getting to "*practical, workable and sustainable*" control measures

The intention of the ACTS Working Group was to re-focus COSHH compliance towards control measures. In practice, effective control of exposure involves assessment of how exposure occurs and the extent of over-exposure. So there has always been a degree of

interaction between Regulation 6 on assessment and 7 on control. With the requirement to apply the principles of good control practice in Regulation 7.7, the interaction is even stronger. In fact, if an employer systematically applies Regulation 7, including the principles, he or she would comply with the great majority of the requirements of COSHH. When COSHH came into force, people, including regulators, tended to focus on assessments. Most Improvement Notices (INs) issued under COSHH were related to Regulation 6. More recently, however, the balance of INs has been roughly even between Regulations 6 (assessment), 7 (control) and 9 (maintenance, examination and testing). We hope that, with time, the balance will shift even further with a greater emphasis on Regulations 7 and 9. Certainly, HSC/E's disease reduction targets will only be achieved if exposure control measures are "*effective in the long-term*", and this will only happen if they are, "*practical, workable and sustainable*" and they are properly maintained. We need to assess, inspect and influence toward these goals. This will put the occupational hygiene profession on its mettle and focus on the most important part of our discipline – effective control of exposure.

### **Further reading**

1. Piney M. (2002) Exposure assessment and control – How to get it right first time. Occupational Health Review. January/February, Pages 18-23.

**Table 1. Duties in four different circumstances**

<p><b>A. Substances which had no OEL and have no WEL</b></p>	<p><b>B. Substances which had an OEL and now have a WEL</b></p>	<p><b>C. Substances which had an OEL but the limit has been removed</b></p>	<p><b>D. Substances which had a MEL, are not an asthmagen or carcinogen or mutagen, and have a WEL</b></p>
<ul style="list-style-type: none"> <li>• Apply the principles of good practice</li> <li>• The vast majority of hazardous substances fall into this category.</li> <li>• This makes explicit what was implicit.</li> <li>• Other well founded exposure benchmarks can be used by the dutyholder introduced via principle (c).</li> </ul>	<ul style="list-style-type: none"> <li>• Under Regulation 7(7) the duty is to: -               <ul style="list-style-type: none"> <li>a) apply the principles of good practice <u>and</u></li> <li>b) <u>not</u> to exceed any WEL <u>and</u></li> <li>c) if the substance is an asthmagen or carcinogen, reduce exposure as low as reasonably practicable.</li> </ul> </li> <li>• If there is evidence of the WEL being exceeded, by definition one or more of the principles of good control practice will not have been applied properly.</li> </ul>	<ul style="list-style-type: none"> <li>• There are sound reasons behind the removal of limits. Limits were removed where there was evidence of concern about health effects at the OEL level.</li> <li>• The primary emphasis in the Regulations is on the application of the principles of good control practice in the first instance, rather than on compliance with a limit.</li> <li>• There is nothing to prevent duty holders using other well founded exposure benchmarks.</li> </ul>	<ul style="list-style-type: none"> <li>• These substances, which previously had a MEL, have lost the accompanying duty to control exposure ALARP. However, Principle (c) requires controlling exposure by measures that are <u>proportionate</u> to the health risk.</li> <li>• The duty is to apply the principles of good control practice <u>and</u> not exceed any WEL.</li> <li>• If there is evidence of the WEL being exceeded, by definition, one or more of the Principles will not have been applied properly.</li> </ul>