

Open Government Status: Fully Open

Internet Embargo: None

Paper Number: ACTS/44/2002

Meeting Date: 21 November 2002

Type of Paper : Above the line

**HEALTH AND SAFETY COMMISSION  
ADVISORY COMMITTEE ON TOXIC SUBSTANCES**

**Proposals for Maximum Exposure Limits (MELs) and Occupational Exposure Standards (OESs) - Feedback on cd182**

**A Paper by Louisa Mcnamara and Jennifer Tunwell.**

**Issue**

1 This paper reports on the responses received from the public consultation on twelve proposed changes to the list of MELs and OESs which were set out in the consultation document CD182.

**Timing**

2 Routine.

**Recommendation**

3 ACTS is asked to consider the actions in paragraph 25 below.

**Consultation**

4 A consultation document (CD182) containing proposals for twelve substances or groups of substances was approved by the Commission in January 2002 (HSC/02/002). Public consultation took place between 7 March and 7 June 2002.

5 The consultation document was distributed to potential consultees in a number of different ways:

- 1200 copies were distributed directly to consultees
- 2000 copies were issued through HSE books
- 127 copies were ordered directly from HSE books.
- it was placed on the Internet

6 HSE received 22 responses (people and organisations responding are listed at **Annex 3**) not including nil returns. Of these replies six were from companies, four were from industry associations, two were from independent consultants, four were from individuals, two were from professional associations, two were from trade unions, one was from another Government department and one was received from an educational establishment.

## **Background**

7 Following consultation in 1998, the Health and Safety Commission and the Secretary of State agreed to approve MELs and OESs in the same way, rather than to include MELs in a Schedule to the COSHH Regulations. MELs, OESs and BMGVs are now all subject to the same public consultation that includes targeting interested parties directly and also placing the consultation package on the Internet. The twelve OES/MEL changes proposed in CD182 are no different from this.

8 The proposed limit changes were considered by ACTS in November 2001 (ACTS/35/2001) where it was agreed to recommend HSC external consultation.

9 A copy of the HSE press release issued at the beginning of the consultation exercise for CD182 is attached at **Annex 2**. The press release includes a summary of the main industrial uses of each of the substances being consulted on.

## **Argument**

10 The proposals in CD182 are listed in the table in **Annex 1**. The comments received on individual substance proposals are summarised in **Annex 4** together with a number of more general comments. Where appropriate, HSE has included a response.

11 It is HSE's view that none of the responses received raise issues of a scientific or technical nature that would require further consideration by WATCH.

12 No major concerns over compliance were received, although one respondent from an industry association commented that the regulatory impact assessments related to business as a whole, and consequently showed very little sensitivity to the potential financial impact that these proposals might have on SMEs.

13 The Regulatory Impact Assessments for the proposed MELs for chloroethane, hydroquinone and manganese all considered the financial impact of the MEL on small businesses, and whether that impact would be disproportionate relative to that on large firms. In the case of all three substances, HSE judges that there will be little or not additional costs to small businesses. Further information is contained in paragraphs 42 and 43 of Annex 4.

## **Communication Plan**

14 The proposals/changes will be publicised in 2003. Paper ACTS/52/2002 sets out options for publicising limits in 2003.

## **Relevant Control Systems**

15 Not relevant although Electronic COSHH Essentials may apply in some cases.

## **Evaluation Plan**

16 Not relevant

## **Costs and Benefits**

17 The Consultation Document contained summaries of the Regulatory Impact Assessments and was agreed by ACTS in November 2001 (ACTS/35/2001) when agreement was given to go out for consultation.

## **Environmental implications**

18 None.

## **European implications**

19 The proposed MEL for chloroethane was consulted on because it is a substance listed in the Schedule attached to the draft 2<sup>nd</sup> European Commission Directive on Indicative Occupational Exposure Limit Values (IOELVs). The Directive, which is currently under negotiation, requires that Member States establish national limits which take account of those published in the Directive. The Directive's proposed limit for chloroethane is 100 ppm or 268 mg/m<sup>3</sup>.

## **Devolution**

20 Results of this CD will apply throughout Great Britain.

## **Financial/ Resource Implications for HSE**

21 This work, including the publication of limits in 2003, will be contained within Health Directorate's existing resources.

## **Other implications**

22 None.

## **Action**

23 ACTS is asked to:

- i Note the comments received on CD182 and endorse HSE's responses.
- ii Agree that the limits proposed by HSE be submitted for agreement by the Health and Safety Commission, prior to publication.

## **Contact**

ACTS Secretariat  
Tel: 020 7717 6184  
Fax: 020 7717 6190

**ACTS/44/2002 - Annex 1**

Proposals for Maximum Exposure Limits and Occupational Exposure Standards changes consulted on in CD182.

<b>Substance</b>	<b>Current MEL/OES</b>	<b>Proposed MEL/OES/Other</b>
Chloroethane 75-00-3	OES withdrawn in 2001	MEL of 50 ppm (8 hour TWA)
Hydroquinone 123-31-9	OES withdrawn in 2001	MEL of 0.5 mg.m <sup>-3</sup> (8 hour TWA)
Manganese and its inorganic compounds 7439-96-5 and others	OESs withdrawn in 2001	MEL of 0.5 mg.m <sup>-3</sup> (8 hour TWA)
Subtilisins (proteolytic enzymes as 100% pure crystalline enzyme)	OES 0.00006 mg.m <sup>-3</sup> (8 hour TWA and STEL)	Withdraw OES
Sulphuric acid 7664-93-9	OES 1 mg.m <sup>-3</sup> (8 hour TWA)	Withdraw OES
Allyl-2,3-epoxypropyl ether 106-92-3	OES 5 ppm (8 hour TWA), 10 ppm STEL	Withdraw OES
Bis(2,3-epoxypropyl) ether 2238-07-5	OES 0.1 ppm (8 hour TWA)	Withdraw OES
<i>n</i> -Butyl glycidyl ether (BGE) 2426-08-6	OES 25 ppm (8 hour TWA)	Withdraw OES
2,3-Epoxypropyl isopropyl ether 4016-14-2	OES 50 ppm (8 hour TWA), 75 ppm STEL	Withdraw OES
Phenyl-2,3-epoxy propyl ether 122-60-1	OES 1 ppm (8 hour TWA)	Withdraw OES
<i>p</i> -Phenylenediamine 106-50-3	OES 0.1 mg.m <sup>-3</sup> (8 hour TWA)	Retain existing OES 0.1 mg.m <sup>-3</sup> Introduce Skin notation
Metalworking fluids	OES mineral oil mist 5 mg.m <sup>-3</sup>	Exclude MWFs from the OES for mineral oil mist

**NEWS RELEASE... NEWS RELEASE... NEWS RELEASE... NEWS RELEASE...**

C009:02

7 March 2002

HSC SEEKS VIEWS ON NEW OCCUPATIONAL EXPOSURE LIMITS FOR POTENTIALLY HARMFUL SUBSTANCES

The Health and Safety Commission (HSC) has today launched a consultation on changes to exposure limits for potentially harmful substances to help protect workers against ill-health.

HSC sets two types of occupational exposure limits - Maximum Exposure Limits (MELs) and Occupational Exposure Standards (OESs).

The consultative document contains proposals for the control of eight substances or groups of substances. These are:

- ? three new Maximum Exposure Limits (MELs) for substances formerly assigned Occupational Exposure Standards (OESs): chloroethane\*; hydroquinone; and manganese and its inorganic compounds;
  - ? withdrawal of five OESs for: glycidyl ethers (2,3-epoxypropyl ethers);
  - ? withdrawal of an OES for subtilisins (proteolytic enzymes as 100 per cent pure crystalline enzyme);
  - ? withdrawal of an OES for sulphuric acid;
  - ? no change to OES for para-phenylenediamine, but introduction of a skin notation for this substance; and
  - ? narrowing of the criteria for applying one OES: mineral oil mists in order to exclude metal working fluids (for which separate HSE guidance is planned).
- Chloroethane is included in draft occupational exposure limits from the European Commission which member states have to take into account when setting their own regulations.

More.../

The seven OESs are being withdrawn as HSE considers that it is not possible to set health based limits for these substances or in the case of sulphuric acid, there is evidence that the current OES is not sufficient to protect health. Chemical Hazard Alert Notices (CHANs) have been issued for subtilisins and sulphuric acid mist. These are available on HSE's website at <http://www.hse.gov.uk/pubns/chindex.htm>

CHANs offer interim advice on good practice which employers will find useful in considering what they need to do as required by the Control Of Substances Hazardous to Health regulations. No CHAN has been issued for glycidyl ethers as HSE believes these substances are no longer used in the UK, except possibly on a laboratory scale.

If approved by the HSC, the changes contained in the consultation document, CD182 will come into force on the publication of *EH40: Occupational Exposure Limits* early in 2003.

Comments on any of the proposals in this consultative document should be sent to: Laura Whitford, HSE, 6SW, Rose Court, 2 Southwark Bridge, London, SE1 9HS before 7 June 2002.

#### Notes to editors

1. The proposals for changes to the Occupational Exposure Limits (OELs) reflect the recommendations of HSC's Advisory Committee on Toxic Substances and its Working Group on the Assessment of Toxic Chemicals. The summaries in the consultative document are not toxicological data sheets and are not intended for use by physicians investigating incidents of possible excessive inhalation or ingestion.

2. There are two types of occupational exposure limits. A **Maximum Exposure Limit (MEL)** is proposed for substances which may cause the most serious health effects, such as cancer and occupational asthma; these are substances for which no threshold level of exposure for the key health effect can be determined or for which exposure thresholds may be identified but at a concentration that is not yet routinely achievable in the workplace. COSHH 1999 requires that exposure should be reduced as far below the MEL as is reasonably practicable. An **Occupational Exposure Standard (OES)** is proposed at a level at which based on current scientific knowledge, there is no indication of risk to the health of workers who breathe it in day after day. If exposure to a substance that has an OES is reduced at least to that level, then adequate control has been achieved.

3. Indicative Occupational Exposure Limit Values (IOELVs) are European Community limit values which are health based (earlier directives referred to them as ILVs). This means that they indicate levels of exposure to hazardous substances considered to provide protection from ill health caused by work. IOELVs are similar to the British OELs system under COSHH.

Harmful substances.../3

4. The main industrial uses of the eight substances/groups of substances in CD182/02 on which HSE is consulting about proposed changes to the OELs, are outlined below:

- ? Use of **Chloroethane** in the UK is in the manufacture of tetraethyl lead or as a local anaesthetic
- ? HSE believes that **Glycidyl ethers (2,3-epoxypropylethers)** are no longer used in the UK, except possibly on a laboratory scale.
- ? **Hydroquinone** is used primarily in photographic developing reagents. It is also used as an intermediate in a number of processes such as the manufacture of photographic developers, agrochemicals, methylmethacrylate, resins, acrylonitrile, and thermoplastic monomer.
- ? The major uses of **Manganese and its inorganic compounds** (which include **Manganese fume** and **Trimanganese tetraoxide**) are in steelmaking, preparing animal feed supplements and trace element fertilisers, and manufacturing welding consumables. Other uses include pigments, paint driers, and catalysts. The uses of permanganate salts include metal cleaning, printed circuit board production, chemical synthesis, and water treatment.
- ? **Metalworking fluids** are used as lubricants/coolants for the machining of metal parts
- ? **Para-phenylenediamine** is used mainly in the formulation of hair dyes
- ? **Subtilisins** are used in the manufacture of detergents and animal feeds and also used in food and leather processing
- ? **Sulphuric acid** is used in a wide variety of industries including the extraction, fabrication and finishing of metal, acid cleaning (pickling), electroplating, fertiliser production, battery manufacture and various segments of the petroleum, chemical and petrochemical industries.

5. A complete list of OELs is revised and published annually by the Health and Safety Executive (HSE) in its publication EH40, "Occupational Exposure Limits". Copies of the 2002 edition (ISBN 0 7176 2083 2) are available, price £10.50 net, from HSE Books and from good bookshops.

7. The 2002 supplement to *EH64: Summary criteria for occupational exposure limits* will be published by the HSE in May 2002. This is a loose leaf publication containing summaries of the data and reasoning behind a number of established OELs. The summaries are intended to help employers, employees, occupational hygienists, and occupational health practitioners to approach the control of exposure to toxic substances, as required under COSHH, in a more informed way. The 2002 supplement will contain new and revised summary criteria documents reflecting changes to the list of OELs approved by HSC in September 2001 and outlined in EH40/2002.

More.../

Harmful substances.../4

Copies of *Control of Substances Hazardous to Health Regulations 1999 Proposals for Maximum Exposure Limits and Occupational Exposure Standards*, CD182, are available free of charge from HSE Books, PO Box 1999, Sudbury Suffolk, CO10 2WA (tel. 01787 881165, fax 01787 313995), or can be viewed and downloaded from the HSE web site at <http://www.hse.gov.uk/condocs/>HSE priced publications are also available from all good bookshops.

**PUBLIC ENQUIRIES:** Call HSE's InfoLine, tel: 08701 545500,  
or write to: HSE Information Services, Caerphilly Business Park, Caerphilly, CF83 3GG.

**PRESS ENQUIRIES: Journalists only.** Madeleine Pennell 020 7717 6901, out of hours 020 7928 8382. For press review copies telephone 020 7717 6904.

HSE information and press releases can be accessed on the Internet at [www.hse.gov.uk](http://www.hse.gov.uk)  
Ends

### **ACTS/44/2002 - Annex 3**

Consultees who responded to the consultation document CD182 – Proposals for Maximum Exposure Limits and Occupational Exposure Standards

Acorus Therapeutics Limited  
British Lubricants Federation  
British Medical Association  
Champion Photochemistry International Limited  
Corus Plc  
Engineering Employers' Federation  
Federation of Small Businesses  
Genesis Environmental Limited  
Mrs J H Green  
Home Office  
Mr D Hutcheson  
Innogy  
Institute of Directors  
London Underground Limited  
Michael Clegg Associates  
Procter and Gamble  
Society of Occupational Medicine  
Trades Union Congress  
Transport and General Workers' Union  
University of Sheffield  
Mr J Westmoreland

SUMMARY OF THE SUBSTANCE-SPECIFIC COMMENTS MADE ON THE CONSULTATION DOCUMENT CD182 AND, WHERE APPROPRIATE, HSE'S RESPONSE

**CHLOROETHANE**

Current limit: OES of 1000 ppm withdrawn

HSC proposal: Introduce MEL of 50 ppm 8 hour TWA

- 1 9 respondents supported HSC's proposal without giving specific reasons why.

**HYDROQUINONE**

Current limit: OES of 2 mg.m<sup>-3</sup> withdrawn

HSC Proposal: Introduce MEL of 0.5 mg.m<sup>-3</sup> 8 hour TWA

- 2 9 respondents supported HSC's proposals without giving specific reasons why.
- 3 One respondent representing company interests disagreed with the MEL proposal suggesting that it was based upon a flawed classification of the chemical as a Category 3 carcinogen and Category 3 mutagen.

*HSE response*

- 4 HSE still believes that a MEL is appropriate, based on two considerations;
- i) The Department of Health's Committee on Mutagenicity advice is that the available evidence suggests an unquantifiable risk of mutagenicity and cannot sustain a threshold approach to inhalation of or dermal exposure to hydroquinone.
- ii) The classification of hydroquinone as a Category 3 carcinogen and mutagen has recently been considered and agreed by the European Commission's Working Group on Classification and Labelling of Substances and has been included in EU and domestic legislation (CHIP3). HSE is satisfied that this classification is a fair reflection of the available information on this substance.

**MANGANESE AND ITS INORGANIC COMPOUNDS**

Current limit: OES of 5 mg.m<sup>-3</sup> withdrawn

HSC Proposal: Introduce MEL of 0.5 mg.m<sup>-3</sup> 8 hour TWA

- 5 10 respondents supported HSC's proposals without giving specific reasons why.
- 6 One respondent representing company interests agreed with the proposal provided HSE understand that in the steel industry there are certain tasks that will require respiratory protective equipment (RPE) to achieve the proposed standard limit.

*HSE response*

- 7 The Regulatory Impact Assessment that was carried out for this MEL proposal indicated that for some tasks within the steel industry RPE would be needed in order to comply with the limit.

**SUBTILISINS**

Current limit: OES of  $0.00006 \text{ mg.m}^{-3}$  (8 hour TWA and STEL)

HSC proposal: Withdraw OES

- 8 7 respondents supported HSC's proposals without giving specific reasons why.
- 9 An independent consultant supported the proposals in principle but considered the information in Annex 1 of CD182 to be misleading. The respondent felt that it did not convey the degree of attention that is required in practice and incorrectly identified that the liquid-handling process is unlikely to generate aerosol.
- 10 One individual recommended retention of the OES until the MEL is adopted.

*HSE response*

- 11 HSE is aware that micro-granular products can be inadvertently crushed into powder form and thus result in an increase inhalation risk. Industry must recognise that the purpose of using micro-granular form is to reduce inhalation risk. Industry must therefore do all it can to protect the substance from being crushed unless it is safe to do so.
- 12 Industry is correct to identify that liquid handling processes can produce aerosol. However, in the case of soap detergent manufacture the liquid is totally contained at all times and is therefore unlikely to generate aerosol outside of its containment. This point is explained in detail in the risk assessment document. Summary documents contained in Annex 1 of the consultative document provide background information to current use and exposure patterns and do not provide information on how to control exposure to hazardous substances
- 13 It is HSC/E policy to withdraw unsafe limits prior to review.

**SULPHURIC ACID**

Current limit: OES of  $1 \text{ mg.m}^{-3}$  (8 hour TWA)

HSC proposal: Withdraw OES

- 14 8 respondents supported HSC's proposals without giving specific reasons why.
- 15 One individual respondent disagreed with the proposal to withdraw the OES; he proposed that HSE reduce the present OES and replace it when a European OEL is agreed.
- 16 An independent consultant disagreed with the proposal because of the lack of specific provisions for young persons.
- 17 Some respondents identified concerns about the future development of an OEL at EU or national level, in particular the practicability of achieving control

at lower levels and the availability of suitable analytical methods for monitoring. They would also wish to see a short-term limit.

*HSE response*

- 18 Sulphuric acid is being considered by the EC's Scientific Committee on Occupational Exposure Limits (SCOEL). The minutes of SCOEL state that the limit under consideration is  $0.1 \text{ mg.m}^{-3}$ . However, as yet, no formal consultation on this limit has emerged from the European Commission. When a recommendation does emerge, there will be a six-month consultation period during which government, social partners and other interested parties will be able to send comments. This will give all interested parties an opportunity to propose amendments, including the establishment of a short-term limit.
- 19 HSE has issued a CHAN that sets out clear guidance for employers including those who employ young people. Schools use sulphuric acid in dilute solution only and not in its concentrated form, therefore fume is unlikely to be produced. As preparation of all acid solutions in schools is done by a laboratory technician, pupils will not be exposed to any inhalation risk. Withdrawal of the current OES for sulphuric acid will not have any impact on its use in schools and we do not feel any special provisions for young people would therefore be necessary.
- 20 These topics are among those that HSE will take into account in any EU negotiations on an OEL for sulphuric acid, or development of a domestic OEL.

**PROPOSAL TO REMOVE CURRENT OESs FOR 2,3-EPOXYPROPYL ETHERS (GLYCIDYL ETHERS)**

Current limit: 8 hour TWA OESs

HSC proposal: Withdraw current OESs

- 21 9 respondents supported HSC's proposals without giving specific reasons why.
- 22 One individual respondent commented that whereas substances under review are listed in table 4 of EH40, it is not clear if the above ethers will be documented. The respondent felt it would be unfortunate if their potential hazard went unrecorded following the withdrawal of OESs. He suggested that there should be an extension of table 4 (or even a new table 5) in EH40 to list those substances with known hazards that have had, but no longer have, a MEL or OES.

*HSE response*

- 23 HSE believes that it is not worth redesigning the tables in EH40 at this time. HSE is currently reviewing the OEL framework and changes to the layout of the tables in EH40 could result. HSE aims to have the new framework in place by June 2004.

**p-PHENYLENEDIAMINE**

Current limit: OES of  $0.1 \text{ mg.m}^{-3}$

HSC proposal: Retain existing OES, introduce Skin notation

- 24 8 respondents supported HSC's proposals without giving specific reasons why.
- 25 One respondent representing a professional association agreed with the proposal but suggested that as the substance is known to be a skin sensitiser and because there is no conclusive evidence concerning respiratory involvement, a 'Sen' notation should also be included.

*HSE response*

- 26 HSE does not support this suggestion. The 'Sen' notation is applied to substances which either (a) are assigned the risk phrase 'R42: may cause sensitisation by inhalation' in the CHIP Approved Supply List (ASL) or (b) are listed in certain legislation – the Social Security Act 1975, or schedule 3 of RIDDOR. Para-phenylenediamine is not listed in that legislation; it is included in the ASL but without R42. WATCH endorsed the conclusion that there is insufficient evidence to support the classification as a respiratory sensitiser using the criteria for R42.

**METAL WORKING FLUIDS**

Current limit: OES mineral oil mist  $5 \text{ mg.m}^{-3}$

HSC proposal: Exclude metal working fluids from the OES for mineral oil mist

- 27 9 respondents supported HSC's proposals without giving specific reasons why.
- 28 One individual respondent supported the proposals with the suggestion that industry needs some sort of standard/sampling technique for non-refined straight oils, as this group is very common in the workplace.
- 29 One independent consultant suggested that HSE should develop separate provision for metal working fluids.
- 30 An industry association respondent supported the exclusion of metal working fluids from the mineral oil OES and requested that HSE ensure that its inspectors follow a consistent approach in pushing for tighter control measures.

*HSE response*

- 31 The monitoring method for neat oils (MDHS84) covers all hydrocarbons, excluding general dust and water and thus will be suitable for non-refined straight oils.
- 32 Major new guidance on good practice standards for reducing health risks to workers exposed to metal working fluids (MWFs) was announced by HSE in July. The main health concern associated with metal working fluids is dermatitis, with around 200 cases reported each year-related to exposure to cutting oils and coolants. There is also an association between exposure to these fluids and respiratory effects, including bronchitis and asthma. HSE's Deputy Director General will launch the new guidance packs at the first of a series of seminars being organised by HSE and the Engineering Employers' Federation starting this autumn.
- 33 HSE ensures a consistent approach by providing guidance and standards to all inspectors.

SUMMARY OF THE SUBSTANTIVE GENERAL COMMENTS MADE ON CD182  
CONSULTATION DOCUMENT

- 34 Respondents representing an industry association, a professional association and one individual commented that the consultation document was clear and concise with generous discussion.
- 35 One respondent representing educational interests commented that it was a serious failing of HSE that information on exposure standards is not available online.
- 36 One respondent representing the views of a company commented that it was unfortunate that certain OESs were being withdrawn prior to guidance being issued.
- 37 A Trade Union respondent requested that, when finalised, the new arrangements be communicated to the Maritime and Coastguard Agency (MCA) so that the protection contained in the amended regulations can be extended to cover seafarers.
- 38 One respondent from an industry association commented that the regulatory impact assessments related to business as a whole, and consequently showed very little sensitivity to the potential financial impact that these proposals might have on SMEs.

*HSE response*

- 39 HSE is introducing a new OEL framework and has recently launched Electronic COSHH Essentials. HSE will be considering whether or not there is scope to make better use of the Internet by linking Electronic COSHH Essentials to limits available on the web.
- 40 Generally, HSE has issued CHANs when proposing the removals of limits and has found these to be a useful form of guidance. The exceptions to this are metal working fluids and glycidyl ethers where CHANs have not been issued. Extensive guidance has now been developed for metal working fluids, which is due to be launched this autumn. Evidence suggests that glycidyl ethers are no longer used and HSE therefore believes that there is no need for any new guidance.
- 41 HSE will notify the MCA of these developments by writing to a contact with a complementary copy of EH40 2003.
- 42 In the case of chloroethane, there was judged to be no cost to small businesses at a MEL of 50 ppm. In the case of hydroquinone, small firms are concentrated in sectors that use the chemical in product form. In these sectors there is a much lower risk of exposure than in those which use the chemical as a raw material, such as bulk chemical supply, where large firms predominate. Therefore HSE judges that there will be no additional costs to small businesses in complying with the new hydroquinone MEL.
- 43 In the case of manganese, small businesses that will be affected by the MEL are identified as belonging to eight industries. Information was obtained from small businesses in two of these industries: casting and metal finishing, and welding. In the casting and metal finishing industry, in which there are around 300 small businesses, one company that regularly melts manganese steel

claims that it will face costs disproportionate to other small businesses. The Small Business Litmus Test found, that firms complying with a MEL of 0.5 mg.m<sup>-3</sup> would face few or no problems. In the welding sector, a MEL of 0.5 mg.m<sup>-3</sup> would impose relatively small costs