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## HEALTH AND SAFETY COMMISSION

### Proposal for a Workplace Exposure Limit for Respirable Crystalline Silica – Amended Version

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#### Issue

1. Publication of a consultative document (CD) proposing a new workplace exposure limit (WEL) for respirable crystalline silica under the Control of Substances Hazardous to Health Regulations 2002 (as amended 2004). The CD was first presented to the Commission on 5 April but has been amended following discussions there and at the ACTS meeting on 30 June.

#### Timing

2. Routine, but if the revised limit is to be published in the next edition of EH40 in April 2006 then the CD will need to be published by early October to still make this possible.

#### Recommendation

3. That the Commission agree to publication of the revised consultative document.

#### Background

4. In November 2004, HSE put proposals to ACTS for a revised WEL for respirable silica of  $0.1\text{mgm}^{-3}$  (from the current level of  $0.3\text{mgm}^{-3}$ ). HSE set out the arguments for this, including the difficulties with setting an alternative lower revised level of  $0.05\text{mgm}^{-3}$ . At ACTS, CBI representatives, whilst agreeing it was right to consult on both limits, recommended that a steer be given in the CD in favour of the  $0.1\text{mgm}^{-3}$  limit due to the difficulties HSE had described over measurement and enforcement for the lower limit. TUC representatives also recommended consultation on both limits but preferred not to steer towards either. Following this, HSE drafted the CD which asked for views on both limits, spelt out the pros and cons of each but did not express a steer towards the higher limit.

5. The CD was put to the 5 April Commission meeting. In the light of discussions there and subsequent correspondence with individual Commissioners, HSE felt it necessary to

amend the draft CD again to make clearer the problems with introducing a limit of  $0.05\text{mgm}^{-3}$  and, whilst inviting comments on both limits, to recommend the  $0.1\text{mgm}^{-3}$  limit at present and to lay out the rationale for this.

6. This was then discussed at the next ACTS meeting held on 30 June, TUC representatives disagreed with this line and again requested that no steer should be given. TUC members also believed that measurement at  $0.05\text{mgm}^{-3}$  was possible. HSE believes that this is the case in some circumstances where sampling over a longer period can be undertaken, but that there is still sufficient doubt over the availability of a suitable method at present for short-term measurement.

7. However, HSE's view is that, on balance, the CD should recommend a move to  $0.1\text{mgm}^{-3}$  at this time and the draft CD has been amended to take account of this (the relevant parts of the revised document are at Appendix 1, paragraphs 4 to 9).

### **Argument**

8. Paper HSC/05/55 explained briefly the reason for consulting on two limits. The revised CD now aims to take account of the points raised then, and in addition the views expressed at the 5 April Commission meeting.

### **Consultation**

9. A significant amount of informal consultation has taken place with the industry. Relevant trade associations and over 20 UK companies were visited and consulted about the Regulatory Impact Assessment (RIA). Contact was also made with a range of small businesses – about 15 sites were visited. The proposals were also considered by the recently established HSE Challenge Panel and were supported.

### **Presentation**

10. A copy of the consultative document will be sent to all consultees noted in the consultation list. It will also appear on the HSE Website, and a press notice will support its publication. It is anticipated that implementation of the new WEL will be supported by leaflets, posters, information on the Lungs at Work Website and articles in the trade press and technical journals. The new WEL will also support the development of Silica Essentials guidance material. There will be a need for targeted enforcement and for monitoring the effectiveness of the new limit.

### **Costs and Benefits**

11. Costs and benefits are detailed in a summary of the RIA in the draft consultative document (see page 26 in Appendix 1). Whichever limit is chosen, there will be significant costs to industry. If the lower limit is chosen, there will be serious implications for the quarrying and brick making industries, which may include plant closures. The expected benefit of the proposals is to reduce the level of silicosis suffered by workers. The current WEL of  $0.3\text{mgm}^{-3}$  leads to a 20% risk of silicosis for employees with a long-term exposure to respirable crystalline silica; the  $0.1\text{mgm}^{-3}$  limit reduces the risk to 2.5%, while the  $0.05\text{mgm}^{-3}$  reduces the risk to less than 1%.

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

12. Although the costs of enforcing the new WEL are expected to be significant, HSE anticipates that costs would be absorbed within existing budgets.

## **Environmental Implications**

13. None.

## **European Implications**

14. The European Scientific Committee on Occupational Exposure Limits (SCOEL) issued a recommendation in 2002 stating that to protect against silicosis, an occupational exposure limit for RCS would need to be below  $0.05\text{mg.m}^{-3}$ . At the moment, this is an advisory, rather than mandatory limit. However, this recommendation would possibly form the basis for European negotiations on a future binding limit for RCS. But given the lack of current activity in Europe on the development of binding limits, HSE believes any action on this will probably not occur for some years, if at all.

## **Link to HSC Strategy**

15. Given the large size of the working population exposed to RCS, and the potential severity of the health effects, the WEL proposals for RCS are viewed as a contribution to HSE's Respiratory Disease Project, part of the Disease Reduction Programme. However, because silicosis develops after long-term exposure to RCS, the health benefits will not become apparent for a number of years.

## **Action**

16. That the Commission agree to publication of the revised consultative document.

## SUMMARY

1. The purpose of this Consultative Document is to seek views on a proposal for a new Workplace Exposure Limit (WEL) for respirable crystalline silica (RCS). In arriving at this proposal, HSE has taken into account the findings from a Regulatory Impact Assessment (RIA). A summary of the RIA is provided at the end of this Consultative Document (Annex 3). Copies of the full RIA are available free of charge from: **Peter Roberts, Health and Safety Executive, Room 103, Daniel House, Stanley Precinct, Liverpool L20 3TW.** The RIA is based on a recent survey of industry sectors in which workers are exposed to dust containing RCS. The primary purpose of the RIA was to provide information on the levels of exposure that are reasonably practicable to achieve in the workplace. If you have information on the levels of exposure that can be reasonably achieved, please do take a few minutes to fill in the response at the back of this document.
2. Crystalline silica is found in almost all types of rock, sands, clays, gravels and shales. It also occurs in building materials such as bricks, tiles and concrete. HSE estimates that at least 100,000 workers are regularly exposed to dusts containing RCS in a variety of industry sectors. These include mines and quarries, iron and steel foundries, the heavy clay industry (including brick manufacture), potteries, construction, stonemasons and the industrial sand industry.
3. Particles of crystalline silica are harmful to the lungs, and can cause the lung disease "silicosis". Silicosis can cause breathing problems that range in severity from mild to severe; severe cases can be very disabling and lead to death. Exposure to RCS can also cause an increased risk of lung cancer.
4. Under the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended 2005), RCS is subject to a Workplace Exposure Limit (WEL) of  $0.3 \text{ mg.m}^{-3}$  measured over an 8-hour time weighted average (8-hr TWA). However, current scientific evidence suggests that a more stringent limit is needed. The evidence suggests that long-term exposure to  $0.3 \text{ mg.m}^{-3}$  would eventually result in up to a 20% risk of developing silicosis. With exposure of  $0.1 \text{ mg.m}^{-3}$  the risks reduce to 2.5%. For exposure levels below  $0.1 \text{ mg.m}^{-3}$  the risks continue to reduce, with  $0.05 \text{ mg.m}^{-3}$  carrying a risk factor of less than 1%.
5. The RIA compares the costs to industry of controlling RCS to a range of possible WEL values against estimates of the associated health benefits. The findings indicated that with a WEL of  $0.1 \text{ mg.m}^{-3}$  there would be increased compliance costs to industry. Estimates of compliance costs for control to levels below  $0.1 \text{ mg.m}^{-3}$  were more substantial with the potential for plant closures in some industry sectors.
6. In relation to measuring airborne levels of RCS, analytical methods need to provide measures of exposure with sufficient precision to support enforcement activity, should this be deemed necessary. Ideally, analytical methods need to be able to cope with both 4-hour and 8-hour TWA periods, given that some workplace tasks may only be a few hours in duration. For RCS, if the WEL were set at  $0.1 \text{ mg.m}^{-3}$ , then the available analytical methods are perfectly adequate to support enforcement. However, if exposures to RCS were around  $0.05 \text{ mg.m}^{-3}$  and a 4-hour sample was taken due to the intermittent nature of

the exposure, then the amount of RCS collected on the filter would be so low that it would not allow precise measurement.

7. It should be noted that with the legal requirements of WELs, the key emphasis is on the need to adhere to good occupational hygiene practice; if there was a clear breach of good practice, enforcement activity could go ahead irrespective of the airborne level of RCS.

8. WELs are set on the recommendations of the Health and Safety Commission's (HSC) Advisory Committee on Toxic Substances (ACTS). Taking into account the findings of the RIA, in particular the information on health risks, and issues relating to costs, compliance and measurement, ACTS advised that HSC should seek views on a proposal for a WEL of either 0.05 or 0.1 mg.m<sup>-3</sup> (8-hour TWA).

9. The HSC and HSE however, while noting ACTS advice, believe that on balance, the current uncertainties over measurement and enforcement at 0.05 mg.m<sup>-3</sup>, coupled with the additional impact on industry of that limit, suggest 0.1 mg.m<sup>-3</sup> is an appropriate revised limit at present. In time, if the uncertainties are resolved, we believe the lower limit could be reconsidered. This CD invites your views on this and the merits, including measurability the economic impact, of 0.05mgm<sup>-3</sup> and 0.1 mg.m<sup>-3</sup> limits.

10. A table comparing the arguments for the two limits is on page 15 of this document.

11. The current intention is to bring the new WEL into force on the publication of the 2006 issue of HSE's booklet '*EH40 – Occupational Exposure Limits*'. However, this is subject to the views received via this consultation process and the reaction of the Health and Safety Commission to them. Please send your views and comments on the proposal for a new WEL of either 0.05 or 0.1 mg.m<sup>-3</sup> (8-hour TWA) for respirable crystalline silica to the Health and Safety Executive by ??/?? 2005 by any of the methods outlined in the preface to this document.