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Exemptions:

WATCH COMMITTEE

BENCHMARK BMGV FOR CHROMIUM VI

Issue

1. The establishment of a Benchmark Biological Monitoring Guidance Value (BMGV) for chromium VI.

Timing Considerations

2. Routine

Background

3. At the meeting of (OLD) WATCH in January 2003 WATCH endorsed HSE's proposal for a Benchmark BMGV for chromium VI of 10 mol chromium/mol creatinine, based on measurements in post-shift urine samples. Subsequent to the meeting, the sole EU manufacturer of Chromium VI compounds made two written submissions to the Secretariat outlining its concerns. Their concerns were about the interpretation of the results for their workforce and they would prefer that any BMGV should be based on a rise in urinary Cr concentration over a designated working period (i.e. the difference between pre- and post-shift results). Whilst setting a Benchmark BMGV on the basis of the difference in pre- and post-shift values had been discussed in the HSE paper, there had been insufficient data from these types of samples for a benchmark BMGV to be recommended on this basis.

4. Following circulation of the company's submission to members of the former WATCH committee and comments received from three members, HSE decided not to publish the proposed BMGV. Instead, HSE would have further discussions with the company before proceeding. This meeting was held in April 2004.

5. The industry representatives described the difficulty they faced interpreting biological monitoring results to workers, unions and management. Although they understood the concept of a benchmark value, workers might have more difficulty. As an example, they said that to a worker a value of 11, compared to the benchmark value of 10, simply meant that they were too high. A worker might not understand that, by definition, 10% of samples would exceed the benchmark value even in places with good control. Also a worker would not understand that the variations in results caused by

analytical, biological and sampling variability, meant that a value of 11 was for all practical purposes the same as 10.

6. The type of sample to be used for the BMGV was also discussed, including a discussion on the type of limit other countries have set, particularly the American Conference of Governmental Industrial Hygienists (ACGIH) limit. The ACGIH Biological Exposure Index (BEI) is based on the average value that might be found in workers who were exposed for 8 hours per day to the ACGIH airborne limit (0.05 mg/m³ 8 hour time weighted average (TWA)). The 2003 BEI specifically notes that it applied to manual metal arc (MMA) welding exposures only (although the 2004 BEI has dropped this notation). In the UK such an approach is not appropriate for substances with a MEL where exposures should be reduced as far as practicable and where the HSE survey showed exposures were much lower.

7. At the end of the discussion Elementis broadly accepted the BMGV for chromium VI but asked HSE to provide additional guidance on interpretation of the results. HSE has drafted some information on interpretation of biological monitoring results and this is at Annexe A.

8. The issue of incorporating the new BMGV into EH40 will be addressed once the main OEL framework has been agreed by ACTS.

Action

9. WATCH is asked to:

- note the attached document on the interpretation of chromium VI biological monitoring results; and
- agree that the Benchmark BMGV for chromium VI of 10 µmol chromium/mol creatinine, based on measurements in post-shift urine samples should be endorsed.

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