

# Good Practice Sheet for Use of Chromium Trioxide

## **E3** Monitoring of Workplace Exposure to Cr(VI) Biomonitoring

This sheet will help employers to comply with the requirements of EU Directive 2004/37 and the terms of the REACH authorizations for uses of chromium trioxide. Working with chromium trioxide may cause cancer. This sheet describes good practice to reduce exposure. It covers the points that should be followed to reduce exposure. It is important to follow all the points, or use equally effective measures. This document should be made available to all persons who may be exposed to chromium trioxide in the workplace so that they make the best use of the control measures available.

The purpose of this GPS is to set out the key requirements for measuring worker exposure to Cr(VI) in dusts or aerosols (also referred to as mists).

### **Need for Workplace Exposure Measurement**

When Chromium trioxide is used, measurement data is needed to assess worker exposure. Worker exposure measurement data may be gathered in different ways, including personal measurements, static air measurements and biomonitoring. Biomonitoring is the sampling of urine or blood of workers exposed to chromium trioxide. Urine sampling is easier, less invasive and therefore far more common than blood sampling.

As a good practice, biomonitoring could be conducted regularly based on the findings of the risk assessment of the activity.

Many national regulations require employers to carry out biomonitoring when workers may be exposed to chromium trioxide.

Biomonitoring based on urine sampling measures exposure of workers to all forms (not only Cr(VI)) of chromium from any source. Other sources of chromium to which workers might be typically exposed include food, water, dietary supplements or cigarettes. While urine monitoring does not differentiate between the different sources or routes of exposure, it can highlight higher levels of chromium exposure and regular biomonitoring can point to a change in exposure. Biomonitoring is therefore helpful in assessing the effectiveness of occupational hygiene and risk management instructions, and in identifying and assessing accidental release of chromium trioxide or other unintended exposure of workers.

### **Requirements for Biomonitoring**

Biomonitoring should be conducted by an occupational physician or adequately trained medical professional. It is usually conducted during routine medical examinations.

### **Frequency of Measurements**

Unless otherwise required by national regulations or on the basis of the findings of the risk assessment of the activity, biomonitoring of workers potentially exposed to Cr(VI) could be conducted e.g. once per year.

### **Guidelines and Standards**

Relevant guidance and standards should be consulted when developing an exposure measurement program. A list of references is provided overleaf, but national legislation or guidance may also apply. Expert support is also advisable.

### **Monitoring Report**

The report should include:

- ✓ A full description of the process being monitored.
- ✓ A description of relevant operational conditions and risk management measures in place.
- ✓ A description of the activities of the worker being monitored.
- ✓ The detailed methodology used to obtain and analyse samples.
- ✓ A complete set of results and supporting data.

See GPS E5.

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### **Applicable Guidance and Standards**

HSE, 1997. Health and Safety Guidance, HS(G) 167. Biological monitoring in the workplace. A practical guide to its application to chemical exposure. Biological monitoring in the workplace: A guide to its practical application to chemical exposure - HSG167.

<http://www.hse.gov.uk/pubns/books/hsg167.htm>

Deutsche Gesellschaft für Arbeitsmedizin und Umweltmedizin. 2013. Arbeitsmedizinische Leitlinie Biomonitoring.

[https://www.dgaum.de/fileadmin/PDF/Leitlinien/002-0271\\_S1\\_Biomonitoring\\_2013-03.pdf](https://www.dgaum.de/fileadmin/PDF/Leitlinien/002-0271_S1_Biomonitoring_2013-03.pdf)

### **Other Relevant Good Practice Sheets**

This GPS is one of three designed to explain the key requirements for measuring worker exposure to Cr(VI) in dusts or aerosols. Please also refer to the following Good Practice Sheets:

- E1 - Monitoring of Workplace Exposure to Cr(VI) by Stationary (Static Air) Measurement.
- E2 - Monitoring of Workplace Exposure to Cr(VI) by Personal Measurement.

Please also refer to GPS E4 which explains requirements in relation to environmental monitoring.

### **Expert Support**

Occupational hygienists specialize in developing and executing worker exposure monitoring programs. Support from a suitably qualified expert is advisable in relation to the specification and delivery of any program for workplace exposure monitoring.