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. Static air monitoring can be part of an exposure measurement program where there is potential for exposure in the workplace to dusts or aerosols containing chromium trioxide.

**Requirements for Static Air Exposure Measurements**

Static air monitoring aims to evaluate how much exposure to Cr(VI) can occur at the workplace and so to help assess the potential for exposure in the course of a worker’s duties. A purpose-designed sampling unit is fixed at the source of the emission or area in which worker exposure occurs, with the head of the sampling unit set in the breathing zone of the worker. Air is drawn through treated filters on the sampling unit at a specified flow rate. The filters separate the inhalable fraction of the dust and retain the Cr(VI). An accredited laboratory carries out analysis to quantify the Cr(VI) captured during sampling.

The LOD of the method needs to be sufficiently sensitive to quantify Cr(VI) in the workplace. A LOD should be < 1 µg/m³ per sample or lower (if technically possible 0.025 µg/m³).

**Frequency of Measurements**

Static air exposure monitoring could be repeated at an appropriate frequency until adequate measurement data is available demonstrating worker exposure is minimized. The frequency of measurement may then reduce. However, new data will normally be required when any changes to the process occurs.

**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.
E1 Monitoring of Workplace Exposure to Cr(VI) 
Stationary (Static Air) Measurements

Applicable Guidance and Standards
HSE MDHS 52/4. Hexavalent chromium in chromium plating mists. Colorimetric field method using 1,5-diphenylcarbazide and spectrophotometry or colour comparator.

ISO SO 16740:2005 Workplace air -- Determination of hexavalent chromium in airborne particulate matter -- Method by ion chromatography and spectrophotometric measurement using diphenyl carbazide.

IFA-Arbeitsmappe 6665: Chrom(VI)-Verbindungen.
https://www.ifa-arbeitsmappedigital.de/IFA-AM_6665

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 GPS:
• E2 - Monitoring of Workplace Exposure to Cr(VI) by Personal Measurement.
• E3 - Monitoring of Workplace Exposure to Cr(VI) by Biomonitoring.
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.