Good Practice Sheet for Uses of Chromates

E3bis Implementing and Reporting Environmental Monitoring[1]

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 chromates. Working with chromates 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 chromates 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 implementing, measuring, and reporting environmental emissions of Cr(VI).

Need for Measurement of Environmental Emissions

When Chromates are used, minimized release to the environment via air or water is possible. Releases to sediment and/or soil are not expected with good housekeeping. Environmental monitoring evaluates how much Cr(VI) is released to air and water.

Scope of Environmental Emission Monitoring

An environmental emission monitoring program should consider all sources of Cr(VI) release to air and water.

Releases to Air

LEV and/or extraction systems generally discharge to air via one or more stacks, often following treatment to remove entrained Cr(VI) aerosols or dusts. Releases from each stack should be monitored..

Releases to Water

Wastewater containing hexavalent chromium may be released to a municipal treatment plant, to surface waters or (rarely) to groundwater, often following on-site (pre)treatment. Wastewater should be sampled after on-site treatment and analysed according to a standard methodology or an accredited laboratory.

Frequency of Measurements

Environmental exposure monitoring should be repeated at an appropriate frequency until adequate measurement data is available demonstrating releases are minimized and stable. 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 emissions 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 description of the system being monitored, including the source of the release.
- ✓ A description of the release and the final receptor.
- ✓ A description of treatment processes in place.
- ✓ The methodology used to obtain and analyse samples.
- ✓ A complete set of results and supporting data.

[1] Chromates include the following substances: Chromium trioxide (S1), Dichromium tris(chromate) (S2), Potassium dichromate (S3), Sodium dichromate (S4), Strontium chromate (S6), Pentazinc chromate octahydroxide (S7), and Potassium hydroxyoctaoxodizincatedichromate (S8).

E3bis Implementing and Reporting Environmental Monitoring[1]

Applicable Guidance and Standards[2]

EN 15259. Air quality - Measurement of stationary source emissions - Requirements for measurement sections and sites and for the measurement objective, plan and report.

EN 13284-1. Stationary source emissions - Determination of low range mass concentration of dust - Part 1: Manual gravimetric method.

DIN 38405-24:1987-05. German standard methods for the examination of water, waste water and sludge; anions (group D); photometric determination of chromium(VI) using 1,5-diphenylcarbonohydrazide (D 24).

UK MCERTS

M18 Monitoring of discharges to water and sewer

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/646803/LIT_6898.pdf

M2 monitoring of stack emissions to air

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/635235/LIT_6405.pdf

Other Relevant Good Practice Sheets

Please also refer to GPS E2bis which explains requirements in relation to worker exposure.

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.

[1] Chromates include the following substances: Chromium trioxide (S1), Dichromium tris(chromate) (S2), Potassium dichromate (S3), Sodium dichromate (S4), Strontium chromate (S6), Pentazinc chromate octahydroxide (S7), and Potassium hydroxyoctaoxodizincatedichromate (S8).

[2] This list is not intended to be comprehensive.

E3bis Implementing and Reporting Environmental Monitoring[1]

The Authorization decisions require Downstream User to implement for hexavalent chromium (chromium (VI)), monitoring programmes to assess environmental exposure to chromium (VI). Such programmes shall:

- Take place regularly (yearly for Pentazinc chromate octahydroxide);
- Be based on relevant standard methodologies or protocols;
- Be representative releases from each site where measurements are carried out, taking into account the OC and RMM (such as wastewater treatment systems, gaseous emission abatement techniques) used at each individual site.

The downstream users must assess and document the results of the environmental measurements and must make them available to ECHA, including the contextual information related to each set of measurements, for the first time 12 months from the date of the Authorization Decision, for transmission to the authorisation holders for the purpose of validating the specific exposure scenarios and for preparing the review report.

Downstream Users in the aerospace industry may carry out activities involving more than one substance containing Cr(VI) and/or more than one activity involving use of a Cr(VI) substance at the same time. In such cases, monitoring and reporting requirements may become very complex and expert advice is appropriate.

ECHA has not provided a ***Template*** for the reporting of the environmental monitoring results. Guidance from ECHA relating to worker exposure monitoring that may also be relevant for reporting environmental measurements is included below.

REACH authorisation decisions by the European Commission often require Downstream Users (DUs) to perform measurements of environmental exposure related to the tasks performed at their sites and report these to ECHA. ECHA also forwards the monitoring results to the Authorisation Holder so they may be considered when preparing a potential review report to extend the period of the authorisation.

In order for measured data to be useful for these processes, they need to be accompanied by sufficient contextual information. This includes e.g. proper linking of the measurement results to performed activities and conditions in which tasks are performed, as well as information about the methodology followed when taking the measurements. This template includes the minimum information to be included when reporting environmental measurement data to ECHA.

DUs need to report the measured data and link them to the identified activities to which they relate. They are strongly recommended to also provide information about the specific conditions of use at their site. Listing the OCs/RMMs is in particular useful where i) these do not match exactly those in the authorisation's contributing scenarios; including when they were amended following an analysis of previous monitoring results (e.g. due to the implementation of such a requirement in the authorisation decision) ii) or in case certain conditions in the CSR were relatively generic, e.g. as broad range; iii) or where a measurement covered more than one activity and the OCs/RMMs in these activities were differing. In this way, the measurements can be interpreted correctly by the Authorisation Holder (or the upstream actors preparing their initial application) - key tasks during a use can be identified - and a proper association between conditions of use and exposure values can be made. All this is essential for an adequate description of - and refinement of - use in a review report (or in an application).

Collaboration between the company using the substance (DU) and the organisation conducting the monitoring (in case this is an external organisation) is important, for filling the format. It is advisable to start filling the format already at the stage where the measurements are planned/designed. Purely methodological info about the measurement are recommended to be included in the template as such; but it is also possible to refer to an attached report of the organisation which conducted the measurement.

Note: Fields in the "General information on use" tab marked with an asterisk may be confidential in some cases. Therefore, DUs may consider not to provide such information in the data that they will submit to ECHA for the Authorisation Holder. Accordingly, where relevant please also remember to respect the competition law rules when providing information to be shared with the Authorisation Holder.

One report per monitoring event and per activity monitored should be prepared.

[1] Chromates include the following substances: Chromium trioxide (S1), Dichromium tris(chromate) (S2), Potassium dichromate (S3), Sodium dichromate (S4), Strontium chromate (S6), Pentazinc chromate octahydroxide (S7), and Potassium hydroxyoctaoxodizincatedichromate (S8).

E3bis Implementing and Reporting Environmental Monitoring[1]

General Information on Downstream User	
Company name*	
Country of site**	
Contact name / email / telephone*	
Date of report	
General Information on Use	
Name of the substance**	
Authorisation number**	
Name of the authorised use**	
Environmental Contributing Scenario Number:	
Environmental Contributing Scenario Name:	
Description of Cr(VI)-related process(es) relating to this measurement	
Description of OC (e.g. frequency, duration of tasks) relating to this release	
Description of RMM (e.g. air abatement, wastewater treatment) in place relating to this release	
Quantity of chromate used per day at site (as Cr(VI)) (units will be e.g. g, mg, l, ml, etc.)	
Description of other activities carried out at site[2] that may affect the Cr(VI) measurement	

[1] Chromates include the following substances: Chromium trioxide (S1), Dichromium tris(chromate) (S2), Potassium dichromate (S3), Sodium dichromate (S4), Strontium chromate (S6), Pentazinc chromate octahydroxide (S7), and Potassium hydroxyoctaoxodizincatedichromate (S8).

[2] E.g. other activities involving the use of Cr(VI) uses not covered by this authorisation) or other releases (e.g. on-site or off-site legacy contamination.

E3bis Implementing and Reporting Environmental Monitoring[1]

Environmental Monitoring	
Environmental medium (e.g. wastewater, surface water, air, other) to which this measurement relates	
Rate of release from this point source to the environment (e.g., litres/day, m^3/day)	
Date of measurement	
Method of analysis	
Method detection level (µg/L, µg/m^3)	
Measured concentration (e.g., µg/litre, µg/m^3)	
Concentration attributable to authorised substance considering other activities carried out at site2 that may affect the Cr(VI) measurement (e.g., µg/litre, µg/m^3)	
Further information (e.g. justification for outlier; whether measurements are conducted internally or by an external organisation; name of organisation which conducted the measurement and if it is certified; info about historical trends; etc.)	

* Data may be confidential in some cases. Therefore, Downstream Users may consider not to provide such information in the file to submit to ECHA for the Authorisation Holder

** These fields are also available in the notification form in REACH-IT - ECHA will in any case pass this info from the notification to the Authorisation Holder. If wished, data may be repeated here for file tracking purposes.

[1] Chromates include the following substances: Chromium Trioxide (S1), Dichromium tris(chromate) (S2), Potassium dichromate (S3), Sodium dichromate (S4), Strontium chromate (S6), Pentazinc chromate octahydroxide (S7), and Potassium hydroxyoctaoxodizincatedichromate (S8).