

Good Practice Sheet for Uses of Chromates

C3

Surface treatment with chromates¹ by spray application in a cabin (manual)

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 Process

This GPS covers the industrial surface treatment of articles by manual spraying in a cabin.

Surface treatment is performed by spraying an even thickness of a solution containing chromates to an article.

Equipment Design and Access

The cabin comprises a closed spray chamber/or semi-closed booth. The spray chamber/spray zone of a booth is maintained under negative pressure when the system is operation. Workers spray articles using a spray gun inside the cabin. The parts are then transferred to a drying chamber or an oven for curing.

The system must have all of the following features:

- ✓ Spray operations are carried out within a closed spray chamber or semi-closed booth.
- ✓ An extraction system designed, dimensioned, located and maintained to capture and remove chromates is provided.
- ✓ Overspray is captured within the cabin or booth.

Measures relevant for ancillary tasks are also described in separate GPS. A full list of GPS is available at [Link](#).

¹ Chromates may include the following substances: Chromium Trioxide (S1), Strontium chromate (S6), Pentazinc chromate octahydroxide (S7), and Potassium hydroxyoctaoxidizincatedichromate (S8).

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Chromates Emissions

Material containing chromates is released during spray operations. Residual chromate solution on equipment surfaces and articles/parts might be possible after treatment.

Risk Management Measures - Workers

- Controls are in place to ensure access to the spray chamber or booth is restricted when the plant is operational, including adequate clearance time after completion of a production cycle. Clearance time should be determined via an appropriate test.
- The spray booth extraction system must be set up such that the spraying process stops immediately in case of malfunction/breakdown.
- The spray booth extraction system must be tested regularly and comprehensively to ensure it is operating efficiently.
- Process equipment must be regularly inspected and cleaned after every use to remove residual chromates after treatment, which appears as colored traces on the equipment. See GPS D4.
- Implement appropriate measures (e.g. provision of local cleaning facilities and hazardous waste management bins) to prevent cross-contamination from equipment and PPE to adjacent areas.
- Physical barriers, signage or strict procedures must be in place to control access to the spray area.

Risk Management Measures - Environment

- The air extraction system must discharge to atmosphere via a filtration or scrubber unit capable of removing chromates efficiently and consistent with best practice.
- Wastewater containing hexavalent chromium should not be discharged to surface or groundwater, but treated to effectively remove hexavalent chromium prior to release to the environment or disposed of as hazardous waste.
- Floors, drains and equipment in process areas and chemical and waste storage areas should be sealed and regularly maintained to ensure integrity.

PPE

All persons accessing the spray cabin must wear:

- protective eye goggles
- air fed respirator/full-face filter mask with P3 filter
- protective gloves
- acid-resistant clothing/footwear.

GPS E1 and your supplier's extended SDS provide relevant information on PPE.

Training and Supervision

All persons with access to the spray cabin must be instructed about the risks of working with chromates, the safe way of handling chromates and use of PPE and other control equipment. Workers must be properly trained and equipped to carry out their duties, and to safely cease such duties as needed. Adequate supervision must be available at all times.

Monitoring

Adequate monitoring data must be available to evidence that potential exposure of workers and potential environmental release are maintained to as low as reasonably practicable level. Annual programs of inhalation exposure monitoring for chromium (VI) through personal sampling must be implemented in combination with post-shift biomonitoring for chromium. Expert input is advisable.

Monitoring should be carried out at least annually. Downstream users may reduce the frequency of measurements once it is demonstrated that exposure of humans and releases to the environment has been reduced to as low a level as technically and practically possible and that the risk management measures and operational conditions correspond to the exposure scenarios and function appropriately.

GPS E2 provide further information on monitoring, including reference to relevant standards.

Other Relevant Good Practice Sheets

Other GPS are also likely to be applicable. A full list can be accessed at [Link](#).

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