

Good Practice Sheet for Uses of Chromates

C2

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

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 spraying in a cabin where the spray processes are automated.

An even thickness of a surface treatment containing chromates are applied to an article by spraying.

Equipment Design and Access

The cabin comprises a spraying chamber that is closed during operations. The process is automated and workers are outside the cabin during spraying. The parts are mounted to a conveyor system at a dedicated station and transported by a conveyor into the cabin. Spray nozzles in the cabin apply the coating, and overspray is returned to a dedicated tank and reused. The parts are then conveyed to curing or drying chambers. The system must have all of the following features:

- Spray operations are enclosed within a closed spray chamber. ✓
- Access to the spray chamber is not possible during spray operations. ✓
- LEV is provided to efficiently remove chromates from the chamber. ✓
- The spray chamber is maintained under negative pressure when the system is operating. ✓
- Articles are prepared for the treatment process at a dedicated station in an adjacent/separate area. ✓
- Masking materials may be used to protect equipment during operations such as spraying or maintenance where there is increased potential for release. The masking material is periodically removed and replaced. ✓

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: Dichromium tris(chromate) (S2), Potassium dichromate (S3), Sodium dichromate (S4)

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Chromates Emissions

Material containing chromates is released during spray operations. Residual chromates on equipment surfaces might be possible.

Risk Management Measures - Workers

- Controls are in place to ensure access to the spray chamber 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 LEV system must be hard-wired so that the spraying process stops immediately in case of a ventilation malfunction/ breakdown.
- The LEV system must be tested regularly and comprehensively to ensure it is operating efficiently.
- Process equipment must be regularly inspected and rinsed to remove residual chromates. 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.

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 a 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

There should be no access to the spray cabin during spray operations. To minimize potential exposure to chromates, all persons accessing the spray cabin must wear:

- Protective eye goggles.
- Protective gloves
- Safety clothing / footwear.
- Plastic coverall.
- Full-face mask with P3 filter.

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. 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 [Link](#).

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