

C2 Surface treatment with chromium trioxide 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 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 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 chromium trioxide is applied to an article by spraying. The resulting surface has improved properties critical for function of the article (e.g. corrosion resistance, adhesion).

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 chromium trioxide from the chamber. ✓
- The spray chamber is maintained under negative pressure when the plating system is operating. ✓
- Articles are prepared for the treatment process at a dedicated station in an adjacent/separate area. ✓

In case these features are not in place, this GPS does not apply, but another may. Measures relevant for ancillary tasks are also described in separate GPS. A full list of GPS is available at [link](#).

C2 Surface treatment with chromium trioxide by spray application in a cabin (automated)

Chromium Trioxide Emissions

Chromium trioxide spray is released during spray operations. Residual chromium trioxide on equipment surfaces might be possible. Appropriate risk management measures should be adopted, as necessary.

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, in case of a ventilation breakdown, the spraying process stops immediately.
- 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 chromium trioxide, See GPS D4.
- Implement appropriate measures to prevent cross-contamination from equipment and PPE.

Risk Management Measures – Environment

- The air extraction system must discharge to atmosphere via a filtration or scrubber unit with State-of-the-Art chromium trioxide removal efficiency.
- 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 managed as a hazardous waste.
- Floors, drains and equipment in process 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 chromium trioxide, all persons accessing the spray cabin must wear:

- Protective eye goggles.
- Protective gloves.
- Acid-resistant clothing / footwear.

GPS E7 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 chromium trioxide, the safe way of handling chromium trioxide 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 provided at all times.

Monitoring

Adequate monitoring data must be available to evidence absence of worker exposure and evaluate environmental release. GPS E1-E4 provide further information on monitoring. Expert input is advisable to ensure an appropriate monitoring program that also meets regulatory requirements.

A typical worker exposure monitoring program will include personal monitoring during a normal production cycle. Static measurement at the spray cabin during a normal production cycle may support risk assessment.

Monitoring should be carried out annually until there is adequate evidence that exposure is minimized. Monitoring may be reintroduced following significant changes to the system.

Other Relevant Good Practice Sheets

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