

Good Practice Sheet for Uses of Chromates

C6

Passivation of Tin Plated Steel (ETP) and Electrolytic Chromium Coated Steel (ECCS) process¹

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 processes used for surface treatment of packaging materials (e.g. electrolytic tinplate (ETP)) and continuous steel strip (e.g. electro-chromium coated steel (ECCS), EG+HDG passivation, varnishing of electrical steels).

The surface treatment section of the line is fully automated and uses an aqueous sodium dichromate solution (electrolyte).

Equipment Design and Access

The metal strip is fed continuously through the process line, including the sodium dichromate treatment. The exact arrangement of the equipment may vary according to the process but it is completely contained. Plating cells are supplied by recirculating systems and storage tanks. The metal strip is rinsed with water following treatment with chromates.

A continuous metal strip treatment process must have all of the following features:

- ✓ The plant is designed so workers cannot come into contact with sodium dichromate during/after treatment.
- ✓ LEV is provided to efficiently remove sodium dichromate mist from the process.
- ✓ The sodium dichromate electrolyte is circulated between the storage tank and plating tank via a closed circuit.
- ✓ Whenever the current is on during plating, the operator has no access to the plating cell.
- ✓ Workers are remote from the tanks during operation apart from occasional visual inspection of the tanks.
- ✓ Metal strip is loaded/unloaded in a separate area to the surface treatment.
- ✓ Rinsate from the rinsing process is transferred to and from the rinse tank via a closed circuit.

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), Sodium dichromate (S4).

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Sodium Dichromate Emissions

Sodium dichromate mist or aerosols can be released from the tanks when accessed. Residual chromates on equipment surfaces might be possible.

Risk Management Measures – Workers

- Electrically interlocked control systems ensure the electric current to the treatment process can only be switched on when the LEV is operating. If the LEV system malfunctions or fails, the electric current to the process automatically switches off immediately.
- The LEV system must be tested regularly and comprehensively to ensure it is operating efficiently.
- Electrically interlocked control systems must ensure the electric current to the plating processes can only be switched on when covers to the process are closed. If covers or lids are opened, the electric current to the process automatically switches off immediately.
- Process equipment must be regularly inspected and rinsed to remove residual chromates, which appears as dark red 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.

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, equipment in process, chemicals and waste storage areas should be sealed and regularly maintained to ensure integrity.

PPE

Access to the treatment process is restricted during normal operations. Persons must wear:

- protective eye goggles
- acid-resistant clothing / footwear.

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

Training and Supervision

All persons with access to the plating line 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 at [Link](#).

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