

D7 On-site wastewater treatment¹

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 activities relating to on-site treatment of wastewater containing chromates.

Wastewater containing chromates may be generated as rinse water from manufacturing and cleaning processes during formulation, plating or surface treatment operations. Normally wastewater will be recycled in the process. When wastewater containing chromates cannot be recycled it may be processed on-site to remove residual chromates.



Photograph shows wastewater holding tank.

Equipment Design and Access

Different options for management of wastewater containing chromates are available. These include on-site wastewater treatment and/or disposal as a hazardous waste by a licensed contractor according to applicable regulations.

On-site wastewater treatment involves treating the wastewater within a dedicated plant to remove chromates prior to discharge to sewer or surface water. In the most common system, the wastewater is dosed with a chemical known as a reducing agent. The resulting salt is separated from the wastewater (under alkaline conditions), dewatered (e.g. in a filter press) and disposed as a solid waste. The tanks are closed. The wastewater treatment process is entirely automated (controlled on redox and pH). It must be possible to safely sample treated wastewater for analysis.

Other wastewater treatment systems (e.g. activated carbon, ion exchange and adsorption followed by filtration) are less common.

As a minimum wastewater treatment systems should be:

- ✓ Restricted in access to prevent worker exposure to chromates.
- ✓ Contained to prevent release of chromates to the environment.
- ✓ Automated controlled to ensure reliable and effective treatment of chromates in wastewater.
- ✓ Monitored to ensure the chromates concentration in wastewater is minimised prior to discharge. Wastewater from the process (e.g. filter press) or treated wastewater containing chromates above the permitted limit is returned to the start of the wastewater treatment process.

¹ Chromates may 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 hydroxyoctaoxidizincatedichromate (S8).

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Chromates Emissions

When operating normally, wastewater treatment should minimise emissions to the environment.

Risk Management Measures – Workers

- Prior Implement appropriate measures (e.g. provision of local cleaning facilities and hazardous waste management bins) to prevent cross-contamination between equipment and PPE to adjacent areas.
- Restrict access to permitted workers only.

Risk Management Measures - Environment

- Dispose of waste containing chromates via a licensed waste disposal contractor according to relevant regulatory requirements.



Photograph shows filter press for dewatering solids on wastewater treatment plant.

Personal Protective Equipment (PPE)

Exposure to chromates are unlikely during process supervision. To minimize potential exposure to chromates, all persons working on parts of the system where chromates may be must wear:

- protective eye goggles
- protective gloves
- safety clothing / footwear.

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

Training and Supervision

All persons with access to the wastewater treatment plant must be instructed about the risks of working with chromates, the safe way of handling chromates and use of PPE and other 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 that potential exposure of workers and potential environmental release are maintained to as low as reasonably practicable level.

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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