Good Practice Sheet for uses of Chromium Trioxide

D4 Maintenance, repair and installation of the process line when the equipment contains chromium trioxide

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 maintenance and repair of existing and installation of new plant, components or equipment.

Plant and equipment must be checked periodically according to a maintenance plan to ensure it is operating optimally.

Unscheduled access to the equipment may also be required to perform maintenance and repair in case of a malfunction.

This GPS describes minor maintenance and cleaning activities that can be carried out when the plant is non operational but chromium trioxide solution or electrolyte remains in the bath, vessel or equipment.

These activities should be subject to a permit-to-work system. Management of risks relating to exposure to chemicals including chromium trioxide should be accounted for as part of the permit-to-work system.

Equipment Design and Access

The equipment design is described in GPS A, B and C. Full access to all components of the plant is required for maintenance, repair and installation. A specific risk assessment and permit to work system must be in place for all scheduled and maintenance activities.

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Chromium Trioxide Emissions

Chromium trioxide residues on equipment surfaces such as plating tanks, lids, extraction lips, racks and spray guns might be possible. Released residual material in pumps or pipes could splash. While the process is non operational, low levels of airborne aerosols or dusts relating to residual chromium trioxide cannot be discounted.

Appropriate risk management measures should be adopted, as necessary.

Risk Management Measures - Workers

- The electrical current to the plating/surface treatment plant and auxiliary plant must be switched off.
- A permit-to-work system* that takes into account specific chemical exposure must be in place for all maintenance, repair and installation works. Approval for such works must be gained according to the permit-to-work system.
- Prior to commencing work, surfaces should be thoroughly cleaned by rinsing with low pressure water. Pipework, pumps and other closed equipment must be gently flushed with water to remove residual chromium trioxide solution. Reducing agents may be used. See GPS D4.
- Replaced parts and components must be cleaned and decontaminated prior to disposal in accordance with relevant legislation.

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.

PPE

To minimize potential exposure to chromium trioxide, all persons conducting maintenance work wear:

- Protective eye goggles.
- Protective gloves.
- Acid-resistant clothing / footwear.
- Face mask in case of splashing risk.
- P3 filter mandatory for encapsulated open tank process lines. P3 filter recommended for other process lines.

GPS E7 and your supplier's extended SDS provide relevant information on PPE.

Training and Supervision

All maintenance persons with access to the equipment must be instructed in the risks from 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 collection of 1 (or 2) personal measurement(s) during the maintenance work.

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.

* E.g. http://www.hse.gov.uk/comah/sragtech/techmeaspermit.htm

