EXPOSURE MONITORING GUIDANCE FOR COMPLIANCE WITH THE NEW OSHA STANDARD FOR HEXAVALENT CHROMIUM

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(NOTE: this guidance provides only general information on air monitoring requirements and should not be considered to be a complete summary of the CrVI-related monitoring requirements.) For specific exposure monitoring requirements, please refer to the OSHA CrVI standard (Title 29 of the Code of Federal Regulations, Part 1910.1026. The standard can be accessed at OSHA's web site (http://www.osha.gov).

On February 28, 2006, the Occupational Safety and Health Administration (OSHA) issued a standard that lowered the limit on worker exposures to hexavalent chromium. This new standard greatly increases the monitoring, training and hygiene requirements for facilities working hexavalent chromium (CrVI) for metal finishers. In metal finishing facilities, there are number of processes that may involve the use of hexavalent chromium products. These processes include, but are not limited to:

- Chromium Electroplating
- Chromic Acid Passivation
- Hexavalent Chromium Conversion Coating
- Chromic Acid Etching
- Chromic Acid Sealing of Anodized and Phosphated Parts
- Wastewater Treatment of Hexavalent Chromium Containing Rinsewaters

OSHA's new CrVI standard requires that facilities using CrVI monitor employee exposures. During the initial compliance assessment period, all job tasks that may have exposures greater than 0.5 mg/m3 must be evaluated. In a metal finishing facility, these jobs include, but are not limited to:

- Metal Finishing Operations & Supervision (i.e., operators, un/rackers, supervisors)
- Quality Control Monitoring & Chemical Additions (lab techs)
- Periodic tasks such as tank clean-out, liner replacement (maintenance staff)
- Wastewater treatment of CrVI-containing waste (treatment operators)

General Requirements

If CrVI is used in the workplace, the employer must monitor employee exposure to CrVI to determine if any employee is being exposed to CrVI in excess of the PEL: 5 $\mu g/m^3$, as an 8-hour (TWA). Employers are required to conduct initial monitoring of airborne CrVI concentrations and to conduct periodic CrVI exposure monitoring for all tasks where employee exposures are above the action level (2.5 $\mu g/m^3$, 8-hour TWA). The recommended and validated monitoring method used for this air sampling and analysis is OSHA Method 215 (available through OSHA's web site at http://www.osha.gov), a method that meets the accuracy and precision requirements of the CrVI standard. A properly accredited laboratory must be used for analysis of the filters. Facilities can conduct their

own sampling (vs. hiring an industrial hygienist), provided that they use the proper sampling equipment, filter media and follow the appropriate provisions of the standard and methodology for testing.

Initial Monitoring

- Employers with less than 20 employees must provide initial monitoring by May 30. 2007.
- All other employers must provide initial monitoring by November 27, 2006.
- If the applicable date stated above has passed, employers must provide initial monitoring when CrVI is introduced into the workplace.

Initial monitoring is not necessary if:

- Objective data, representing the highest CrVI exposure likely to occur during processing, use, or handling, show that CrVI cannot be released in concentrations above the action level;
- Employee exposure monitoring was performed within 12 months prior to May 30, 2006, which satisfies the monitoring requirements and was conducted under conditions substantially equivalent to existing conditions; or
- Employees are exposed to CrVI for fewer than 30 days per year and the employer uses direct-reading instruments to determine airborne levels of CrVI

Periodic Monitoring

If initial monitoring shows employee exposures at or above the action level, employers must perform periodic 8-hour TWA monitoring as follows:

8-hour TWA monitoring:

- Every three months if initial TWA monitoring results are at or above the action level but at or below the TWA PEL.
- Every three months if initial TWA monitoring results are above the TWA PEL.
- Periodic 8-hour TWA monitoring is not required if initial TWA monitoring results are below the AL. However, in order to verify this, two consecutive measurements, **taken at least 7 days apart**, must show that exposure levels are below the AL. After that, employers may discontinue the monitoring requirements accordingly.

Additional Monitoring

Employers must perform additional monitoring if there is an indication that employee exposures have increased. Examples include changes in the production process, control equipment, or work practices that could increase exposure levels; and leaks, ruptures, or other equipment breakdowns.

Monitoring Specifications

In determining each employee's workplace exposure to CrVI, employers may take either:

- Personal breathing zone air samples for each employee exposed; or
- Personal breathing zone air samples for one or more employees when the samples are representative of each employee's exposure, provided that that sampling is conducted under the highest potential exposure.

Personal breathing zone air samples may be considered representative of an employee's 8-hour TWA if:

- The employee(s) sampled are in the same job classification
- The employee(s) sampled work in the same area
- The employee(s) sampled work during the same work shift (if the employer can document that tasks and workplace conditions are similar during all work shifts, he/she only needs to determine the exposure level for one work shift).
- The employee(s) sampled is expected to have the highest CrVI exposures of all employees in the group of employees represented by the samples collected.

It is recommended that sampling be conducted for at least seven (7) hours for each operator exposed, regardless of their duration of exposure on a daily basis. For example, a maintenance operator may only have 30 minutes of exposure to chromic acid, but the monitor should be worn for the full work shift.

Employee Notification

Employers are required to notify employees of all monitoring results, in writing, within 15 working days of receiving the results. If exposures are above the PEL or AL, the employer must inform the employee of the corrective actions being taken (i.e., changes to engineering controls, work practices, etc.).

OSHA's standard requires employers to allow affected employees or their designated representatives to observe any monitoring activities. Where such observations involve entry into areas where personal protective equipment (PPE) is necessary, the employer must provide and ensure the use of the appropriate PPE. In addition, the employer must ensure that observers follow all other applicable safety and health procedures.

Recordkeeping

Employers must establish and keep accurate records of all exposure monitoring data as well as the objective data used to support exemptions from initial monitoring requirements.

Exposure Monitoring Data:

Employers must keep exposure monitoring records for 30 years. The records must include information on:

- Date of the measurement for each sample taken;
- Monitored operation involving CrVI exposure;

- Sampling and analytical methods used and evidence of accuracy.
- Number, duration, and results of samples taken.
- Worker name, job classification, and exposure levels (where representative samples are used, identify all employees represented by the data and indicate which employees.
- Additional helpful information would be the type of metal finishing process (i.e., hard chromium plating), the type of equipment (manual, automatic hoist, etc.), the type of ventilation (bilateral, push-pull, enclosed hood, etc.)

Objective Data:

Objective data records must be kept as long as the employer relies on this data and include information on:

- CrVI-containing material in question;
- Source of the objective data.
- Testing protocol, results, and/or analysis of the material.
- Exempted operation and data supporting the exemption.
- Other data relevant to the operations, materials, processes, or employee exposures covered by the exemption.