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OSHA’s Hexavalent Chromium Standards

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AIHCE - Hexavalent Chromium Part I
June 5, 2007
What is Hexavalent Chromium?

- Toxic form of chromium metal that is generally man-made
- Used in many industrial applications primarily for its anti-corrosive properties
- Created during certain “hot” work processes where the original form of chromium was not hexavalent
How Can Occupational Exposures to Hexavalent Chromium Occur?

- Inhalation of mists, dusts or fumes created during processes involving the use of Cr(VI) compounds or hot processes that cause the formation of Cr(VI)

- Eye or skin contact with powders, dusts or liquids containing Cr(VI)
Major Health Effects

- Lung cancer
- Nasal septum ulcerations and perforations
- Asthma
- Skin ulcers
- Allergic and irritant contact dermatitis
Three Cr(VI) Standards

- 1910.1026 General Industry
- 1926.1126 Construction
- 1915.1026 Shipyards
Major Provisions of the Standards

- Scope
- Permissible Exposure Limit (PEL)
- Exposure Determination
- Regulated areas **
- Methods of Compliance
- Respiratory Protection
- Protective Work Clothing and Equipment

- Hygiene Areas and Practices
- Housekeeping **
- Medical Surveillance
- Communication of Hazards
- Recordkeeping
- Dates

** General industry only
All occupational exposures to Cr(VI) compounds except:

- Exposures that occur in the application of pesticides
- Exposures to portland cement
- Where employers have objective data demonstrating that a material containing chromium or a process involving chromium cannot release Cr(VI) in concentrations at or above 0.5 µg/m³ as an 8-hour time-weighted average (TWA) under any condition of use
Permissible Exposure Limit (PEL) and Action Level (AL)

- **PEL:** 5 µg/m³ – TWA
- **AL:** 2.5 µg/m³ - TWA
Two options allowed for determining employee exposures:

- Scheduled monitoring option
- Performance-oriented option
Scheduled Monitoring Option

• Prescribes a schedule for performing initial and periodic personal monitoring

• If initial monitoring indicates exposures are:
  – Below the AL: monitoring can be discontinued
  – At or above the AL: monitor every 6 months
  – Above the PEL: monitor every 3 months
Performance-Oriented Option

- Exposures characterized using any combination of air monitoring data, historical monitoring data or objective data

- No fixed schedule for performing periodic monitoring
General Requirements for Exposure Determination

- Affected employees must be notified where exposures exceed the PEL
- Methods used for air monitoring and analysis must be sufficiently accurate
- Employees or their representatives must be allowed to observe Cr(VI) monitoring
Regulated Areas

• For general industry employers only

• Areas where exposures exceed or can be reasonably expected to exceed the PEL
  – Must be demarcated from other areas
  – Must limit access to employees who have a need to be there
Methods of Compliance: What methods must employers use to achieve the PEL?

- Establishes engineering and work practice controls as the primary means of achieving the PEL

- Exceptions:
  - Painting aircraft or large aircraft parts
  - Processes or tasks that do not result in exposures above the PEL for 30 or more days per year

- Prohibits job rotation to achieve compliance with the PEL
Respiratory Protection

Respirators and a program per 29 CFR 1910.134 required during:

- Periods necessary to install or implement feasible engineering and work practice controls
- Maintenance or repair operations where engineering and work practice controls are infeasible
- Operations where all feasible controls have been used and exposures are still above the PEL
- Operations where exposures do not exceed the PEL for 30 or more days per year
- Emergencies
Protective Work Clothing and Equipment

• Required where a hazard is present or is likely to be present from skin or eye contact with Cr(VI)

• Not linked to the PEL

• Provided and paid for by the employer

• Cr(VI)-contaminated clothing and equipment must be removed when work shift or task is completed

• Special provisions for cleaning, storage and labeling of Cr(VI)-contaminated clothing and equipment
Hygiene Areas and Practices

- Must provide change rooms and washing facilities per 29 CFR 1910.141
- Employees must wash their hands and face at the end of a work shift and prior to eating, drinking, smoking, etc.
- Employer-provided eating areas must be kept as free as practicable of Cr(VI)
- No eating, drinking, smoking etc. in regulated areas
Housekeeping

- For general industry employers only
- Keep all surfaces as free as practicable of accumulations of Cr(VI)
- Use HEPA vacuums or other methods that minimize exposure to Cr(VI)
- Use of compressed air prohibited unless:
  - Used in conjunction with a ventilation system to capture the dust cloud created by the compressed air, or
  - No alternative method is feasible
- Dispose of Cr(VI)-contaminated waste in labeled, impermeable bags/containers
Medical Surveillance

- Provisions for conducting baseline and periodic health assessments of exposed employees
- Performed by or under the supervision of a physician or other licensed health care professional (PLHCP)
- Provided at no cost to employee and at a reasonable place and time
Which Employees Must Be Provided Medical Surveillance?

- Exposed at or above the action level (2.5 µg/m³) for 30 or more days per year
- Experiencing signs or symptoms of Cr(VI) exposure
- Exposed in an emergency
What Must the Medical Examination Include?

• Medical and work history, with emphasis on:
  – Cr(VI) exposure (past, present, future)
  – History of respiratory system dysfunction
  – History of asthma, dermatitis, skin ulceration or nasal septum perforation
  – Smoking status and history
• Physical examination, with emphasis on the respiratory tract and skin
• Any additional tests deemed appropriate by the PLHCP
When Must Medical Examinations Be Offered?

- Within 30 days after initial assignment and annually thereafter
- Within 30 days after a PLCHP recommends additional examinations
- When employees shows signs or symptoms of Cr(VI) exposure
- Within 30 days after exposure during an emergency
- At the termination of employment
Communication of Hazards

• Provide employee training in accordance with OSHA’s Hazard Communication standard (29 CFR 1910.1200)

• Additional training on the contents of the Cr(VI) standard and the purpose and description of the medical surveillance program required by the standard
Recordkeeping

- Must maintain records per 29 CFR 1910.1020 for:
  - Air monitoring data
  - Historical monitoring data
  - Objective data
  - Medical surveillance information, including:
    - PLHCP’s written opinions
    - Information provided to the PLHCP
- No requirement to maintain training records
When Must Employers Comply with Provisions of the Standards?

Start-up dates:

- All provisions except engineering controls: Now
- Engineering Controls: May 31, 2010
Major Industries/Operations Covered by the Cr(VI) Standard

• Electroplating
• Welding on stainless steel or Cr(VI) painted surfaces
• Painting
  – Aerospace
  – Auto body repair
• Chromate pigment and chemical production
• Chromium dye and catalyst production
• Glass manufacturing
• Plastic colorant production
• Construction
  – Traffic painting
  – Refractory brick restoration
  – Paint removal from bridges
Top Three Industries/Operations Covered

- Welding - 269,380 (48%)* employees
- Painting - 81,893 (15%)* employees
- Electroplating - 66,857 (12%)* employees

* % of total employees (558,451) covered by the standard
Guidance and Outreach

- Compliance Directive
- Other guidance products
Litigation Update

Settlement agreements reached with:

- Surface Finishing Industry Council
- Building and Construction Trades Department – AFL-CIO, Laborers’ International Union of North America, and International Brotherhood of Teamsters
- National Association of Manufacturers and Specialty Steel Industry of North America
Litigation Update (cont.)

Petitions pending in U.S. Court of Appeals for the Third Circuit:

- Public Citizen Health Research Group and the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union
- Edison Electric Institute
Questions?
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