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HEXAVALENT CHROMIUM	
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04/22/14	1	Reformat	A. Holland
08/12/16	2	Change Logo & company name to MAPP	L. Blanchard

**1. Purpose**

1.1. The purpose of the MAPP Hexavalent Chromium Safety Program is to protect both our employees and the environment from Cadmium contamination from our facility operations. The intent of our program is to be in full, continuous compliance with OSHA Standard 29 CFR 1910.1027 and all other local, State and Federal requirements for our industry. MAPP employees do not directly self-perform any work activities involving exposure to Cr(VI) however subcontractors who do shall have a program that meets or exceeds this policy. Any work site where activities occur that may produce exposure shall be monitored for compliance and adjacent worker exposure to the standards.

**2. Responsibilities**

- 2.1. Management will implement, maintain & monitor effectiveness of:
  - 2.1.1. Entire Hexavalent Chromium safety program, including semi-annual revisions and updates to reflect the current
  - 2.1.2. Status of the program
  - 2.1.3. Engineering & administrative controls for Hexavalent Chromium exposure
  - 2.1.4. Employee training and awareness
  - 2.1.5. Medical surveillance program
  - 2.1.6. Respiratory protection program
  - 2.1.7. Hexavalent Chromium disposal program
  - 2.1.8. Housekeeping program
  - 2.1.9. Protective clothing issue, storage and disposal

**3. Supervisors will:**

- 3.1. Provide effective and continuous control of all Hexavalent Chromium operations.
- 3.2. Immediately inform management of any deficiencies in engineering or administrative controls.
- 3.3. Conduct routine assigned inspections and monitoring.
- 3.4. Immediately correct any deviation from operational safety requirements.
- 3.5. Provide immediate on-the-spot training for any employee who shows lack of knowledge or application of required operational Hexavalent Chromium safety requirements.
- 3.6. All employees who have the potential exposure prior to the time of initial job assignment and annually shall be trained. The employees shall be informed of the specific nature of the operations which could result in exposure to Hexavalent Chromium above the action level, the purpose, proper selection, fitting, use, and limitation of respirators, engineering controls, purpose & a description of the medical surveillance program & the medical removal program.

**4. Employees will:**

- 4.1. Follow all operational and Hexavalent Chromium safety procedures
- 4.2. Seek immediate supervisor guidance to resolve questions
- 4.3. Conduct operations in accordance with company provided training
- 4.4. Immediately report to a supervisor any deficiency in engineering or administrative controls
- 4.5. Properly use, store and dispose of issued and assigned personal protective clothing
- 4.6. Maintain change and shower areas neat and orderly

**5. Hexavalent Chromium**

- 5.1. Hexavalent chromium is prevalent in the metal fabricating industry. Cr(VI) compounds are used most commonly as a structural and anticorrosive element in stainless steel, iron, and steel production and in welding and painting.
- 5.2. Occupational exposures to Cr(VI) can occur from inhaling its mist (such as from chrome plating), dusts [including inorganic pigments or Cr(VI)-painted surfaces], or fumes (as in stainless steel welding) and from dermal contact. Exposure to Cr(VI) has been linked conclusively to lung cancer, asthma, nasal ulcerations and perforations, skin ulcerations (or chrome holes), and allergic and irritant contact dermatitis.

**6. Monitoring**

- 6.1. The work performing subcontractor shall provide for monitoring or measuring of employee exposure. Periodic monitoring shall be conducted at least every 6 months if initial monitoring shows employee exposure. Air monitoring will be performed at the beginning of each job task. If exposure monitoring results indicate exposure is above the PEL, The work performing subcontractor shall include in written notification the corrective action being taken to reduce exposure to or below the PEL.

**7. Exposure Determination.**

- 7.1. The work performing subcontractor shall ensure their employees are not exposed in excess of the permissible exposure level (PEL).
- 7.2. The work performing subcontractor shall determine the eight-hour TWA exposure for each employee exposed to Cr(VI). The work performing subcontractor will choose between a scheduled monitoring option and a performance-based option for making exposure determinations when there is the potential for exposure to hexavalent chromium at or above the action level.
- 7.3. The action level is set at one-half of the PEL, or 2.5 micrograms per cubic meter of air calculated as an eight-hour TWA. Because employee exposures to airborne concentrations of Cr(VI) are variable, workers may sometimes be exposed above the PEL even if exposure samples (which are not conducted on a daily basis) generally are below the PEL. Maintaining exposures below the action level provides increased assurance that employees will not be exposed to Cr(VI) at levels above the PEL because of exposure variations in the workplace.

## **8. Regulated Areas.**

- 8.1. The work performing subcontractor will establish a regulated area wherever an employee's exposure to airborne concentrations of Cr(VI), or can reasonably be expected to be, is in excess of the PEL. The work performing subcontractor shall ensure that regulated areas are demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the regulated area.

## **9. Methods of Compliance.**

- 9.1. The work performing subcontractor shall implement engineering and work practice controls to achieve the proposed PEL, or the lowest levels feasibly achievable. This could include ventilation systems, materials substitution, or work practice modifications. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer must provide respiratory protection.  
The work performing subcontractor will not rotate employees to different jobs to achieve compliance with the PEL.

- 9.2. The work performing subcontractor shall implement effective engineering and work practice controls if the exposure level is above the permissible limit for more than 30 days per year.

## **10. Respiratory Protection.**

- 10.1. The work performing subcontractor shall provide respiratory protection for employees during:
  - 10.1.1. Periods necessary to install or implement feasible engineering and work practice controls.
  - 10.1.2. Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible.
  - 10.1.3. Work operations where controls are not sufficient to reduce exposures to or below the PEL.
  - 10.1.4. Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL.
  - 10.1.5. Emergencies.

## **11. Protective Work Clothing and Equipment.**

- 11.1. Where a hazard is present or is likely to be present from skin or eye contact with Cr(VI) The work performing subcontractor shall provide appropriate personal protective clothing and equipment at no cost to employees, and it shall ensure that employees use such clothing and equipment. In addition, a stringent program will be developed for removing, handling, and cleaning contaminated clothing and equipment.

## **12. Housekeeping and Hygiene.**

- 12.1. All surfaces must be maintained free of accumulations of Cr(VI), and all spills and releases of Cr(VI)-containing material must be cleaned up promptly. Dry shoveling, sweeping, and brushing may be used only when HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to Cr(VI) have been tried and found ineffective. Effective wet shoveling, sweeping, and brushing are allowed.
- 12.2. The use of compressed air to remove Cr(VI) when no alternative method is feasible, but only when used with a ventilation system designed to

capture the dust cloud created by the compressed air. Waste, scrap, debris, and any other materials contaminated with Cr(VI) and consigned for disposal shall be collected and disposed of in labeled, sealed, impermeable bags or containers. The work performing subcontractor shall provide washing facilities in areas where skin contact with Cr(VI) can occur and ensure that employees use them as needed.

### **13. Medical Surveillance.**

13.1. Medical surveillance is required for employees experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure or those exposed in an emergency. "Emergency" means any unexpected and significant release of Cr(VI), such as equipment failure, rupture of containers, and failure to control equipment. The work performing subcontractor shall make medical surveillance available at no cost to the employee, and at a reasonable time and place for all employees who are:

13.1.1. Occupationally exposed to Cr(VI) at or above the action level for 30 or more days a year.

13.1.2. Experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure.

13.1.3. Exposed in an emergency.

### **14. Hazard Training and Communication.**

14.1. The work performing subcontractor shall provide initial training prior to or at time of initial assignment. The work performing subcontractor shall provide training that is understandable and ensure each employee can demonstrate knowledge of the health hazards associated with hexavalent chromium exposure; location, manner of use, and release of chromium in the workplace; engineering controls and work practice controls; purpose, proper selection, fitting, proper use and limitations of respirators and protective clothing; emergency procedures; measures employees can take to protect themselves from exposure; purpose and description of medical surveillance program; contents of the standard. The work performing subcontractor shall make a copy readily available without cost to all affected employees. Training shall be documented.

14.2. The work performing subcontractor shall ensure that each employee can demonstrate knowledge of the contents of this standard, and the purpose and a description of the medical surveillance program required

by this standard. In addition, The work performing subcontractor shall provide a copy of this standard to all affected employees.

**15. Changing and Hygiene Facilities:**

- 15.1. The work performing subcontractor shall provide change rooms for decontamination and ensure facilities prevent cross-contamination. Washing facilities shall be readily accessible for removing chromium from the skin. Workers must wash their hands and face or any other potentially exposed skin before eating, drinking or smoking.

**16. Recordkeeping.**

- 16.1. The work performing subcontractor shall make provisions for exposure records to be maintained, including:
- 16.2. All data related to air monitoring: date of measurement; the operation involving exposure to Cr(VI) being monitored; sampling and analytical methods used and evidence of their accuracy; and the number, duration, and the results of samples taken.
- 16.3. The type of personal protective equipment worn (such as respirators).
- 16.4. The name, Social Security number, and job classification of all employees represented by the monitoring, indicating which employees actually were monitored.
- 16.5. An accurate record of all objective data relied upon to comply with the requirements of the standard, including the chromium-containing material in question; the source of the objective data; the testing protocol and results of testing or analysis of the material for the release of Cr(VI); a description of the process, operation, or activity and how the data support the determination; and other data relevant to the process, operation, activity, material, or employee exposures.
- 16.6. An accurate record for each employee covered by medical surveillance under this standard, including the physician's written opinions.