

## ***IOSH Local Emphasis Program***

IA/LEP 3

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- **Record Type:** Local Emphasis Program
  - **Directive Number:** IA/LEP 3
  - **Subject:** Local Emphasis Program (LEP) for Hexavalent Chromium in General Industry and Construction
  - **Information Date:** 02/24/2009
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### **IOSHA IA/LEP 3**

Workforce Development Department Iowa Occupational Safety and Health (IOSHA)

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#### **ABSTRACT**

**Purpose:** To establish and implement a Local Emphasis Program (LEP) for programmed health inspections of general industry establishments and construction worksites to identify evaluate and control the hazards associated with exposure to hexavalent chromium.

**References:** OSHA/IOSH Instructions: IOSHA CPL 2.103, CPL 04-00-001 (CPL 2-0.102A), IOSHA Instruction CPL 2.25I, CPL 02-00-141, CPL 02-00-051, CPL 02-02-074

**Cancellations:** None

**Action Offices:** State of Iowa

**Originating Office:** State of Iowa

**Contact:** (515) 281-8066

**By and Under the Authority of**

**Stephen J. Slater**

**Deputy Labor Commissioner/IOSH Administrator**

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- I. Purpose. This notice establishes and implements a Local Emphasis Program (LEP) for programmed health inspections to identify, evaluate, and control the hazards associated with exposure to hexavalent chromium. This program affects worksites where exposures to hexavalent chromium are likely due to the work tasks performed.
- II. Scope. This Notice applies to general industry establishments and construction worksites within the jurisdictional boundaries of the Iowa Division of Labor State OSHA Enforcement program.
- III. Action. The IOSH Administrator shall ensure that the procedures established in this instruction are adhered to in the scheduling of programmed inspections.
- IV. Expiration. This Notice is effective until cancelled
- V. References.
  - A. IOSHA Instruction CPL CPL 2.103, Field Inspection Reference Manual (IAFIRM), dated September 26, 1994.
  - B. OSHA Instruction CPL 04-00-001 (CPL 2-0.102A), Procedures for Approval of Local Emphasis Programs (LEPs), November 10, 1999.
  - C. IOSHA Instruction CPL CPL 2.25I, Scheduling System for Programmed Inspections.
  - D. OSHA Instruction CPL 02-00-141 Inspection Scheduling for Construction dated July 14, 2006.
  - E. OSHA Instruction CPL 02-00-051 (CPL 2.51J), Exemptions and Limitations Under the Current Appropriations Act, dated May 28, 1998.
  - F. OSHA Instruction CPL 02-02-074 Inspection Procedures for the Chromium (VI) Standards
- VI. Background. Chromium hexavalent (Cr(VI)) compounds, often called hexavalent chromium, exist in several forms. Industrial uses of hexavalent chromium compounds include chromate pigments in dyes, paints, inks, and plastics; chromates added as anticorrosive agents to paints, primers, and other surface coatings; and chromic acid electroplated onto metal parts to provide a decorative or protective coating. Hexavalent chromium can also be formed when performing "hot work" such as welding on stainless steel or melting chromium metal. In these situations the chromium is not originally hexavalent, but the high temperatures involved in the process result in oxidation that converts the chromium to a hexavalent state. OSHA considers all Cr(VI) compounds to be carcinogenic. In addition to lung cancer, Cr(VI) is also capable of causing airway sensitization or asthma, nasal ulcerations and

septum perforations, skin sensitization or allergic contact dermatitis, irritant contact dermatitis and skin ulcerations, and eye irritation.

Exposure to hexavalent chromium is covered by separate standards, 1910.1026 and 1926.1126 for general industry and construction respectively. The standards became effective on May 30, 2006. Employers with 20 or more employees were given 6 months from the effective date to comply with most of the provisions. Employers with less than 20 employees were allowed 12 months from the effective date to come into compliance with most of the provisions. All employers were given 4 years from the effective date to install feasible engineering controls. The standards lower the permissible exposure limit for hexavalent chromium to 5 micrograms of Cr(VI) per cubic meter of air as an 8-hour time-weighted average.

The primary intent of these OSHA standards is to protect employees from lung cancer resulting from inhalation of Cr(VI). By targeting employers in SIC codes known or likely to have tasks with employee exposures to hexavalent chromium, it is OSHA's goal to ensure compliance with the new standards which will in turn reduce and/or eliminate hazardous exposure to hexavalent chromium.

Through analysis of historical OSHA sampling data, OSHA has identified a number of toxic substances that are often found in the same industrial applications where hexavalent chromium is or can be present: antimony, arsenic, cadmium, calcium oxide, cobalt, copper fume, lead, iron oxide, manganese, nickel, silver, tin, and zinc oxide. See Appendix C. These substances are regularly present in conjunction with hexavalent chromium and may be released into the work environment from the same materials and in the same manner as hexavalent chromium.

The intent of this LEP is to target workplaces with occupational exposures to hexavalent chromium and the toxic substances listed in Appendix C that are causing (or are capable of causing) occupational illnesses. By targeting inspections to workplaces known or likely to perform tasks associated with Cr(VI) overexposures, it is OSHA's goal to encourage compliance with applicable standards, which will in turn reduce and/or eliminate potentially hazardous exposures.

VII. Program Procedures. This LEP includes two major activities: targeting/site selection, and inspections.

A. Targeting/Site Selection

1. General Industry establishments

Using the SIC codes listed in Appendix A, The Workforce Data and Business Development Bureau at Iowa Workforce Development will prepare a master list of establishments. Establishments on the master list are arranged alphabetically by company name. The list is then randomized and maintained by the Iowa Division of Labor Management Information section. Iowa OSHA will request from the Iowa Division of Labor Management Information section cycles of five to fifty employers from the random number table.

In addition, the Iowa Division of Labor shall delete any facilities that have had health inspections in the preceding two years addressing hazards covered by this LEP, provided that no citations were issued for Cr(VI) or the substances listed in Appendix C, or that such citation(s) were issued but either a follow-up inspection documented tangible, appropriate, and effective efforts to abate any serious hazards cited or OSHA received notice of, and confirmed abatement of, any serious hazards cited.

Inspections may then be scheduled using the first cycle list. Establishments on the cycle list may be inspected in any order, so that resources are efficiently used. Once a cycle has begun, all establishments in the cycle will be inspected before a new cycle is begun, except for carryovers that will be allowed as provided in IOSHA Instruction CPL 2.25I, at paragraph B.I.b.(l)(e). Based on local knowledge, establishments that are not likely to have occupational exposures to hexavalent chromium or firms known to be out of business may be deleted, documenting the basis for such determinations. CSHOs will proceed with the programmed inspection where it has been determined that a new business is using the same plant and equipment of the previous business.

## 2. Construction Sites

- a. Paint removal from steel structures is identified in OSHA Instruction CPL 02-02-074, Inspection Procedures for the Chromium (VI) Standards, (see appendix B) as operations with CR(VI) exposures. Lead chromate, zinc chromate and strontium chromate are typical Cr(VI) chemicals used.
- b. Construction of ethanol plants often involves the welding of stainless steel tanks, piping and fittings. The welding of stainless steel has a high potential for hexavalent chromium exposure. Stainless steel welding is identified in OSHA Instruction CPL 02-02-074, Inspection Procedures for the Chromium (VI) Standards, (see appendix B).

A Special Emphasis Sites list will be requested from the OSHA Construction Inspection Targeting Application in accordance with CPL 02-00-141, Inspection Scheduling for Construction. The list will be generated using the following selection criteria:

End Use: Bridge      End Use: Ethanol Plant  
Type:      Alteration      Type:      Alteration/New Construction

Dollar Amt: \$?

All other criteria will remain unspecified. The generated Special Emphasis Sites lists will be inspected in accordance with the directive as specified in this section.

- c. Each Special Emphasis Sites list requested will become a construction inspection cycle. The construction inspection cycles will run concurrently with the general industry inspection cycles.
- d. When a safety CSHO is inspecting a construction site and observes an activity where potential Cr(VI) overexposures are suspected, appropriate health referrals will be made.

## B. Inspections

1. Each establishment/construction site selected for inspection shall receive a focused health inspection. The scope of the inspection will be limited to tasks/exposures to hexavalent chromium, the toxic substances listed in Appendix C that are causing (or are capable of causing) occupational illnesses and any other plain view hazard(s). If it is determined that a general industry establishment selected for inspection has a different SIC code than was reported, and the SIC is not listed in Appendix A, the inspection will continue if tasks are identified which could result in exposures to hexavalent chromium.
2. If a general industry establishment selected for inspection is no longer at the address that was listed with the Workforce Data and Business Development Bureau, the inspection will continue if the same establishment is still in business.
3. If the establishment/construction site on the inspection list has a different name and/or is under new ownership, the inspection will continue if the current establishment/construction site has tasks which could result in exposures to hexavalent chromium or the toxic substances listed in Appendix C

4. Expanding Scope of Inspection - The CSHO may expand the scope of an inspection under this NEP if other workplace hazards or violative conditions are observed and/or brought to their attention. The CSHO shall follow the guidelines in the FOM when expanding the scope of the inspection (see CPL 02-00-148, Chapter 3, Section III.B and Chapter 11, Section I.C.1). Inspections initiated under this LEP will be scheduled and conducted in accordance with provisions of the FOM, except as noted herein.

### C. Inspection Procedures

1. Once an inspection has been scheduled for an identified establishment, the OSHA Integrated Management Information System (IMIS) database will be searched for the employer's citation and fatality/accident history prior to opening the inspection. Inspections under this NEP are to be conducted by an Industrial Hygiene Compliance Officer (IH or Health CSHO) who has received training. This training shall be accomplished at the local level and cover the hazards of hexavalent chromium, the contents of this Instruction, and requirements outlined in Section XII, Training for OSHA Personnel, CPL 02-02-074, *Inspection Procedures for the Chromium (VI) Standards*.
2. The CSHO shall also determine if the identified establishment is scheduled for any other programmed inspection (e.g., NEP, LEP).
3. At the opening conference, the CSHO will verify with the employer the correct SIC/NAICS code for the establishment. The CSHO must then verify with the employer whether processes that may produce worker exposures to Cr(VI) or any of the toxic substances listed in Appendix C are conducted at the facility. If it is determined that no such processes are present, the CSHO shall exit the facility with no inspection being conducted. However, if the establishment is targeted under another NEP or LEP, the CSHO shall proceed with an inspection under the other program.

If any processes are present that may produce worker exposures to Cr(VI) or any of the toxic substances listed in Appendix C, the CSHO shall proceed with the inspection following the procedures of this LEP. The CSHO will consider and evaluate worker exposures and compliance in regard to activities including, but not limited to: regular operations; setup and preparation for regular operations; making adjustments during operations; cleaning of the process area; scheduled and unscheduled maintenance; implementation of engineering controls; use of personal protective equipment (PPE); medical surveillance programs; and worker training and education.

In conducting inspections under this LEP, the CSHO shall also follow the inspection procedures contained in the FOM and/or Chapter IX, CPL

02-02-074, *Inspection Procedures for the Chromium (VI) Standards*. Any citations issued for Cr(VI) hazards shall be drafted in accordance with policies identified in Chapter XI, CPL 02-02-074.

4. All inspections conducted under this LEP where workers are exposed to Cr(VI) or any of the toxic substances listed in Appendix C are expected to include personal exposure monitoring. CSHOs assigned inspections under this LEP shall normally take calibrated instruments and sampling media with them on the first day of the inspection in order to take advantage of any worker sampling opportunities that may be present, including short duration screening samples. If exposure monitoring is not conducted as part of the inspection, a thorough explanation for not monitoring is to be included in the inspection file. CSHOs should not rely solely on employer sampling data in making the decision not to conduct monitoring.
5. If safety hazards are noted that cannot be appropriately dealt with by the Industrial Hygiene CSHO, an appropriate safety referral will be made, subject to any current exemptions or limitations on such activity.
6. All potential hazards observed in the course of any inspection conducted under this NEP shall be appropriately addressed. (See Section XII.A.6)
7. The protection of CSHOs during any inspection is important. In order to ensure adequate protections, CSHOs shall conduct a hazard determination to establish the presence of Cr(VI) (or other toxic substances) prior to initiating the walkaround. This hazard determination will rely on information such as previous inspection history, material safety data sheets, professional judgment, and/or previous exposure monitoring surveys. Appendix D contains a sample hazard determination table for CSHOs performing inspections for hexavalent chromium.
8. PPE to be used during the inspection, such as respirators, gloves and/or protective clothing, is to be made available to the CSHO prior to the inspection and will be worn based on the CSHO's determination of his or her expected hazardous exposures. Appendix E contains tables of suggested PPE for CSHOs conducting inspections under this LEP in the following industries:
  - a. Electroplating, Plating, Polishing, Anodizing and Coloring Industry
  - b. Gray and Ductile Iron Foundries
  - c. Metal Fabrication Shops



d. Scrap Metal Industry

D. Outreach

1. The Iowa Division of Labor Consultation Program Office is encouraged to develop outreach programs that will support the efforts of the Agency in meeting the Department's strategic goal for safe and secure workplaces (reference [DOL Fiscal Year 2010 Budget in Brief](#)). Such programs could include letters to employers, professional associations, local safety councils, apprenticeship programs, local hospitals and occupational health clinics, and/or other employer organizations for industries that have potential exposures to hexavalent chromium. Speeches, training sessions, and/or news releases through the local newspaper(s), safety councils and/or industrial hygiene organizations can provide another avenue for dissemination of information. Alliances developed with industries, labor groups, and other organizations would also be an effective way to reach out to affected employers OSHA has prepared materials which will be of assistance in this outreach effort. A variety of online resources can be accessed through OSHA's public Web site, [www.osha.gov](http://www.osha.gov). There is a Safety and Health Topics Page on hexavalent chromium under the alphabetical "Site Index."

E. Follow-Up Inspections and Monitoring.

1. Follow-up inspections will be conducted for all cases in which the employer was cited for violations tied to documented exposure(s) above the applicable PEL for hexavalent chromium or any of the toxic substances listed in Appendix C. Follow-up inspections will also be conducted for all cases with documented exposures above the action level where the employer was cited for failure to comply with requirements triggered by those exposures. Resources allowing, the follow-up inspection will be conducted within three months after the final abatement date for the cited violations. During the follow-up visit the CSHO shall verify the employer's abatement documentation/verification by carefully evaluating any and all air monitoring results, implemented engineering controls, PPE (including respiratory protection), housekeeping and worker information and training programs. Procedures for follow-up inspections will be in accordance with the OSHA FOM, CPL 02-00-148, Chapter 3, Section IX.A.

It is expected that personal air sampling will be conducted by OSHA staff during follow-up inspections, unless the job task or job site is no longer active. If exposure monitoring is not conducted, a thorough

explanation for not monitoring must be placed in the investigation file. Under this NEP, use of employer-generated monitoring data alone is not permitted for the purpose of abatement verification for cited worker exposures above the PEL.

2. Abatement documentation/verification will be submitted to or collected by the Area Office for all other violations of the Chromium (VI) standards or other OSHA standards cited during inspections conducted under this NEP. The abatement information must be included in the case file in a timely manner. Whenever possible, case files are to be closed in the fiscal year in which the inspection was conducted to allow the data to be applied to the Agency's Strategic Goal accomplishments, unless implementation of engineering controls extends beyond the fiscal year in which the inspection was conducted.

#### VIII. Recording in IMIS.

- A. Current instructions for completing the appropriate inspection classification boxes (Items 24 and 25) on the OSHA-1, shall be applied when recording inspections conducted under the LEP as follows:
  1. The OSHA-1 for a programmed inspection conducted under this local emphasis program shall be marked "Planned" (Item 24) and "Local Emphasis Program" (Item 25c). Record "CRV6" in space 25c.
  2. If it is determined that an inspection will not commence at a general industry establishment selected due to reasons such as ten or fewer employees, wrong SIC code, establishment is out of business, etc., the OSHA-1 shall be coded "No Inspection" in Item 35d and the appropriate block shall be marked in Item 45. The OSHA-1 shall nonetheless be coded as described in A.1. above.
  3. If it is determined that an inspection will not commence at a construction site selected due to process not active, the OSHA-1 shall be coded "No Inspection" in Item 35d and the appropriate block shall be marked in Item 45. The OSHA-1 shall nonetheless be coded as described in A.1. above.
  4. The OSHA-1 for any unprogrammed inspections related to complaints or referrals requiring inspection, imminent danger, and fatality catastrophe investigations will be coded as normally

required under the FIRM. In addition the designation "CRV6" will be recorded in the LEP space (Item 25c).

- IX. Evaluation. No later than November 15 of each year this program remains in effect, the Iowa Division of Labor will prepare a formal written evaluation of this LEP in the format specified by OSHA Instruction CPL 04-00-001, Appendix A.

Appendix A  
General Industry Standard Industrial Classification (SIC) codes selected

SIC	Industry
2011	Meat Packing Plants
2013	Sausages and Other Meat Products
2015	Poultry Slaughtering and Processing
2599	Furniture and Fixtures, Not Elsewhere Classified
2816	Inorganic Pigments
2819	Chromium Catalyst Producers
2821	Plastic Colorant Producers
2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
2865	Cyclic Organic Crudes & Intermediates, and Organic Dyes & Pigments
3089	Plastics Products, Not Elsewhere Classified
3211	Flat Glass
3221	Glass Containers
3229	Pressed & Blown Glass & Glassware, Not Elsewhere Classified
3312	Steel Works, Blast Furnaces (Including Coke Ovens), and Rolling Mills
3321	Gray and Ductile Iron Foundries
3322	Malleable Iron Foundries
3324	Steel Investment Foundries
3325	Steel Foundries, Not Elsewhere Classified
3341	Superalloy Producers
3398	Metal Heat Treating
3421	Cutlery
3442	Metal Doors, Sash, Frames, Molding, and Trim
3444	Sheet Metal Work
3469	Metal Stampings, Not Elsewhere Classified
3471	Electroplating, Plating, Polishing, Anodizing, and Coloring
3479	Coating, Engraving, and Allied Services, Not Elsewhere Classified
3556	Food Products Machinery
3585	Air Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment
3589	Service Industry Machinery, Not Elsewhere Classified
3721	Aircraft
3724	Aircraft Engines and Engine Parts
3728	Aircraft Parts and Auxiliary Equipment, Not Elsewhere Classified
7532	Top, Body, and Upholstery Repair Shops and Paint Shops

Appendix B  
Typical Industries/Operations with Cr(VI) Exposures

<b>Industry/Operation</b>	<b>Comment / Typical Cr(VI) Chemical Used</b>
Food Processing Paints	Maintenance Welding and Fabrication of Stainless Steel Equipment
Iron and Steel Foundries; Steel Mills; Forging; Superalloy Producers	Chromium Metal, Cr(VI) Fume
Welding of Stainless Steel or Cr(VI) coatings	Cr in Steel Oxidized to Cr(VI) fume welded or torch-cut
Manufacture of Pesticides	CCA and ACC
Manufacture of Glass	Sodium Dichromate Dihydrate
Cleaning Laboratory Glassware	Potassium Dichromate
Electroplating; Chrome Plating	Chromic Acid
Construction with Pressure-Treated Wood	CCA and ACC
Manufacture of Chromate Pigments	Dichromates, Lead Chromate (Chrome Yellow), Strontium Chromate, Zinc Chromate
Painting (Aerospace, Auto Body repair, Traffic Markings), Paint Removal from Steel Structures	Lead Chromate, Zinc Chromate, Strontium Chromate
Manufacture of Paint	Lead Chromate, Zinc Chromate, Strontium Chromate
Fiberglass Production	Cr(VI) Contaminants Formed in Furnace

## APPENDIX C

### TOXIC SUBSTANCES OFTEN FOUND IN CONJUNCTION WITH HEXAVALENT CHROMIUM

The table below was developed from historical sampling data analyzed by OSHA's Salt Lake Technical Center (SLTC).

Table C. Toxic Substances Commonly Sampled with Cr or Cr(VI).

Antimony
Arsenic
Cadmium
Calcium Oxide
Cobalt
Copper Fume
Iron Oxide
Manganese
Nickel
Silver
Tin
Zinc Oxide

## APPENDIX D

### SAMPLE HAZARD DETERMINATION TABLE FOR CSHOs INSPECTING FOR HEXAVALENT CHROMIUM

<b>Jobsteps</b>	<b>Hazard Identified</b>	<b>Preventive or Corrective Measure</b>
Anticipating and recognizing the presence of hexavalent chromium	Exposure to Cr(VI)	CSHOs are to be trained in hazard anticipation and recognition, reference OSHA Instruction <a href="#">CPL 02-02-074</a> . See <a href="#">Appendix C</a> for other toxic substances.
Evaluate exposure of workers	Exposure to Cr(VI)	Review the employer's records to see if they have sampled for Cr(VI). See <a href="#">Appendix C</a> .
Donning PPE	Numerous (also see <a href="#">Appendix E</a> )	Wear safety toed shoes, and ANSI-certified safety glasses, wear hard hat on construction sites and all general industry sites where overhead hazards exist.
Evaluate your own exposure to Cr(VI)	Exposure to Cr(VI)	Self-sample for Cr(VI); if medical surveillance required, reference OSHA Instruction <a href="#">PER 04-00-005</a> .
Hanging and checking pumps	Exposure to Cr(VI)	Normally hang and check pumps by having worker come out of regulated area.
Evaluating local exhaust ventilation used to control exposure to Cr(VI)	Exposure to Cr(VI), if controls are inadequate	Have the worker stop the operation; wear PPE including gloves with a long cuff if contact with surface contamination is likely; wear shoe/boot covers and/or full body protection, as well as proper respiratory protection.
Evaluating ventilation used to control exposure to Cr(VI) from welding fume	Heat, spark, intense light from welding operation	Assure that welder is off and have worker remove any objects that could burn while doing the evaluation.
Evaluating glove boxes used for abrasive blasting	Exposure to Cr(VI) (and silica if sand blasting; also see <a href="#">Appendix C</a> )	If possible, have worker demonstrate the operation of the glove box without substrate in the box.

## **APPENDIX E**

### **PERSONAL PROTECTIVE EQUIPMENT SUGGESTION TABLES FOR CSHOs EXPOSED TO HEXAVALENT CHROMIUM**

The CSHO PPE Suggestion Tables in this appendix were originally developed by the Columbus, Ohio, OSHA Area Office, and were subsequently adapted for this Cr(VI) NEP. There are four tables applicable to operations which may have exposures to hexavalent chromium. Each table is presented in a sub-appendix as follows:

APPENDIX E-1: CSHO PPE Suggestion Tables for the Electroplating, Plating, Polishing, Anodizing and Coloring Industry

APPENDIX E-2: CSHO PPE Suggestion Tables for Gray and Ductile Iron Foundries

APPENDIX E-3: CSHO PPE Suggestion Tables for Metal Fabrication Shops

APPENDIX E-4: CSHO PPE Suggestion Tables for the Scrap Metal Industry



APPENDIX E-1. CSHO PPE Suggestion Tables for the Electroplating, Plating, Polishing, Anodizing and Coloring Industry.

SIC Code 3471. Establishments primarily engaged in all types of electroplating, plating, anodizing, coloring, and finishing of metals and formed products. This includes, but is not limited to, buffing, cleaning, de-scaling, grinding, polishing/de-polishing, pickling and laminating of metal and formed products; electrolyzing steel; tumbling of machine parts; shot peening; sandblasting of metal parts; chromium, gold, silver, or decorative plating of metals and formed products; and re-chroming auto bumpers.

NAICS Code 332813. This industry comprises establishments primarily engaged in electroplating, plating, anodizing, coloring, buffing, polishing, cleaning, and sandblasting metals and metal products for the trade.

Hazards. The electroplating industry involves the coating of a metal object with another metal by using an electrical current passed through a chemical solution. The process includes a multitude of potential chemical hazards, which may cause poisoning, chemical burns, damage to the respiratory system, cancer and allergic reactions. Process fluids leaking, splashing, spilling or draining across floors can cause slip and fall hazards, as well as the unintentional mixing of reactive chemicals leading to dermal damage, compromise of clothing, buildup of humidity, deterioration in machines harming vulnerable parts and electrical wiring, and the premature and often undetected rotting or eroding of structural surfaces such as floorboards, stairways and roofing systems. The industry has many small shops where lighting is poor, heating/cooling is nonexistent and work areas are tight, leading to increased material handling accidents. Potential injuries, such as cut, puncture and abrasion hazards, exist due to the use of machines such as grinders, polishers, jigs and other sharp tools. The industry uses chemicals, such as gasoline as a cleaning agent, and stores large amounts of volatile chemicals making explosion hazards a consideration. Other common hazards include electrical shock, fire, eye damage due to flying particles, entanglement in moving machinery, noise, and burns from hot liquids.

PPE. Below is Table E-1-A listing recommended personal protective equipment to be worn by the compliance officer while investigating within this industry. It is not intended to replace CSHO assessment of the hazards, and their required actions. Additionally, the below-listed PPE is specific to the industry but general in nature. Tasks within the industry that require specific PPE are listed in Table E-1-B. Note, any brand names that may be listed are for example only; OSHA does not recommend or endorse any manufacturer or product.

E-2 Appendix E-1. CSHO PPE Suggestion Tables for the Electroplating, Plating, Polishing, Anodizing and Coloring Industry