



# IPC Safety Audit



ASSOCIATION CONNECTING  
ELECTRONICS INDUSTRIES

# The

## *IPC would like to thank*

the members of IPC's Environmental, Health and Safety (EHS) Committee for developing, reviewing, and editing this safety audit program. In particular, IPC would like to thank Joan Girard, Safety and Environmental Manager for Electrotek Corporation and Chair of IPC's Safety and Health Subcommittee for her leadership on this program. Other individuals who provided significant contributions to the document included Lee Wilmot, Corporate EHS Manager of Hadco Corporation and former Chair of IPC's EHS Committee; John Lott, Chief Environmental Officer for DuPont Electronics and current Chair of IPC's EHS Committee; John Sharp, Environmental, Health, and Safety Director of Teradyne Connection Systems and current Vice Chair of IPC's EHS Committee; Michael Heth, Director of Health, Safety and Environmental Quality of Allied Signal Laminate Systems; Liberty Friedline, Safety Engineer for OmniCircuits; Gil McLean, Jr, Environmental Engineer for Viasystems; Vicki Sherwood, Environmental Technologist for DuPont Electronics; and Brian Moynihan, Group Environmental, Health, and Safety Manager of Johnson Matthey Advanced Circuits. IPC would also like to thank Jim Schwarz, Sn, President of OmniCircuits and the Chicagoland Circuit Board Association and Douglass Bartlett, President of Bartlett Manufacturing – both of whom were instrumental in providing motivation for this project.

## **PURPOSE**

Establish a safety and health audit checklist for printed circuit board manufacturing facilities that will help facilities manage their safety and health obligations.

## **SCOPE**

This audit checklist is designed to cover a facility's compliance with major OSHA requirements and a facility's compliance with more general, routine requirements. Although this checklist will facilitate compliance with Occupational Safety and Health Administration (OSHA) rules and regulations, the checklist is merely a guide and should not be used to guarantee legal compliance.

## **METHODOLOGY**

OSHA requirements are triggered by specific workplace factors – the presence of certain machinery, chemicals and workplace exposures, as well as more general requirements that apply to most workplaces. It is recommended that auditors perform two difference inspections to capture these varying types of requirements. The first inspection checklist is geared toward assessing compliance with major OSHA requirements; the second checklist is geared toward assessing compliance with more general OSHA requirements. According to California OSHA, the following violations are typical at PWB facilities:

- *Miscellaneous electrical violations*
- *Lack of written plans*
- *Absence of personal protective equipment*
- *Lack of inoperative or distant eye wash/deluge shower*
- *Violations involving fork lifts and bench grinders*
- *Noise exposures to routers and drills*
- *Tank safety/labeling*
- *Lack of monitoring for lead exposures near soldering operations*
- *Unguarded shafts, chain drives and belts*
- *Failure to check ventilation systems*

This audit program is designed to capture “typical” PWB violations and help members eliminate their occurrence or address them as soon as possible once they are identified.

### **STEP #1 Determine Compliance Status**

Determine facilities' compliance with major OSHA requirements (please see “Due Diligence Review” on page 2).

### **STEP #2 Conduct Facility-Wide Safety Audit**

Walk-through facility and determine whether facility has achieved compliance with more general OSHA requirements (please see “Facility Walk Through Audit” on page 16).

### **STEP #3 Correct all Potential Violations Identified**

The main benefit of an audit program is to identify potential violations so that facilities can correct them before they result in OSHA fines or penalties. Most importantly, however, timely correction will prevent injury to employees and ensure a productive and safe workplace.

**Step #1** Conduct Due Diligence Review

This matrix outlines major OSHA requirements, which may apply to particular PWB facilities. If there is an “A” in the “Applicability” column, the requirement applies to all PWB facilities. If there is an “S” in this column, the requirement applies to some PWB facilities and facilities should reference the relevant regulatory summary sheet to determine whether the requirement is triggered.

Once it is determined which standards are triggered, facilities should reference the summary sheets to determine whether they appear compliant. If key regulatory elements are in place and appear sufficient, check the box labeled “Compliant.” Please note, however, the appearance of compliance does not guarantee compliance.

*Please note:*

These standards are ranked according to their frequency of occurrence for the PWB industry. Although not all major OSHA requirements are listed, the most common standards applicable to the industry are included. Others, however, may be triggered in certain circumstances.

Standard	Applicability	Plan	Training	Records	Other	Compliant
Hazard Communication	A	X	X	X	X	<input type="checkbox"/>
Chemical Specific Programs	S	X	X	X	X	<input type="checkbox"/>
Hazard Assessment	A	-	X	X	X	<input type="checkbox"/>
Lockout/Tagout	A	X	X	X	X	<input type="checkbox"/>
Respiratory Protection	S	X	X	X	X	<input type="checkbox"/>
Illness/Injury Records	A	-	-	X	X	<input type="checkbox"/>
Fork Truck Standard	S	-	X	X	-	<input type="checkbox"/>
Bloodborne Pathogens	A	X	X	X	X	<input type="checkbox"/>
Hearing Conservation	S	X	X	X	X	<input type="checkbox"/>
Hazardous Waste/Emergency Response	A	X	X	X	-	<input type="checkbox"/>
Employee Exposure Records	A	-	-	X	X	<input type="checkbox"/>
Permit-Required Confined Space	S	X	X	X	X	<input type="checkbox"/>
Emergency Action Plan	A	X	X	X	X	<input type="checkbox"/>

## Hazard Communication Standard (29 CFR 1910.1200)

### Purpose

Inform employees of hazardous chemicals present in facility.

### Applicability

Standard applies to any chemical known to be present in the workplace in manner that may result in employee exposure under normal conditions of use or foreseeable emergency. Covered PWB chemicals include sulfuric acid, sodium hydroxide, screening dyes, ammonia, chlorine, lead, and formaldehyde.

### COMPLIANCE CHECKLIST:

#### Written Program

- Does facility have written program, outlining procedures facility uses to communicate chemical hazards to employees? Plan must cover labeling, compilation of material safety data sheets (MSDSs), and employee training.
- Does plan include current inventory list of all hazardous chemicals used in the workplace? Check list against available MSDSs. Do chemical names match MSDS names?

#### Training

- Does facility ensure that employees are trained on hazardous substances in their work area (i.e., how to read an MSDS and understand hazcom labels) and where to obtain hazcom information at the time of their initial assignment and whenever a new chemical is introduced into their work area?
- Do employees receive refresher training whenever necessary to understand chemical risks and how to protect themselves from exposure? It is recommended that facilities retrain on an annual basis.

#### Recordkeeping

- Does employer maintain employee training records for a period of not less than three years after worker's employment has been terminated? Records must provide the date/description of instruction given and the name/job description of the employee, including date of hire and/or transfer.
- Does employer have file containing MSDSs for each chemical present in the workplace or that enters the plant either purchased or as sample? If a listed substance has no MSDS, contact manufacturer or supplier. Employer must make MSDSs readily available to employees, shift supervisors, and safety and emergency personnel in their work areas during all operating shifts. According to OSHA, electronic versions of MSDSs are acceptable if readily accessible.

#### Labeling

- Are all chemicals present in the workplace properly labeled with the identity and hazard warning of the chemical? Inspector should determine whether label name matches name on MSDS. Dip tanks containing sulfuric acid, sodium hydroxide, and other hazardous substances must be labeled and include hazard warning. Employers must ensure that when chemicals are transferred from labeled containers, labeling requirements are met. When chemicals are transferred into portable containers for immediate use (i.e., by one person during their shift when under their exclusive control), hazcom labeling is not required.

## Chemical Specific Programs (Lead, Formaldehyde)

(29 CFR 1910.1025/1048)

### Purpose

Protect workers from potential exposure to toxic and hazardous chemicals.

### Applicability

Process steps that may trigger program include HASL, wave soldering, and routing for lead; electroless copper for formaldehyde. Rule is triggered when air monitoring shows that employee exposures may exceed chemical's action level (30 ug/m<sup>3</sup> for lead, 0.5 ppm for formaldehyde – both averaged over 8-hour period) or short-term exposure level (2 ppm over 15 minute period) for formaldehyde.

### COMPLIANCE CHECKLIST:

#### Written Program

• If monitoring shows that worker exposures may exceed the PEL (50 ug/m<sup>3</sup> for lead, 0.75 ppm for formaldehyde – both averaged over an 8-hour period) or short-term exposure limit (STEL) for formaldehyde (2 ppm measured over 15 minutes), does facility have written compliance program, describing each operation where exposures may be exceeded/how exposures will be reduced?

#### Training

- If lead is used in facility, has general awareness training been provided to all employees?
- If monitoring suggests that some employees may be exposed to lead or formaldehyde above their action levels, has employer trained all potentially affected employees annually?

#### Testing/Monitoring/Medical Surveillance

- Has facility conducted initial surveillance of potential exposure areas and obtained time-weighted averages representing potential worker exposures? Measurements should be repeated if there is any change in production, process, or control that might result in increased employee exposure. Has facility maintained records of surveillance results?
- If surveillance shows potential exposures meet or exceed action levels for formaldehyde or lead (0.5 ppm for formaldehyde, 30 ug/m<sup>3</sup> for lead) or STEL for formaldehyde (2 ppm over 15 min.), has facility conducted monitoring and informed employees of results in writing? Has facility maintained monitoring results?
- If monitoring shows that exposure levels meet or exceed the action level or STEL for formaldehyde, has facility conducted periodic monitoring at regular intervals (check regulation)? Has facility maintained records of periodic surveillance tests?
- If ventilation is used to control exposure, have measurements been taken, demonstrating its effectiveness? Measurements should be made quarterly and within 5 days of a production change that may result in exposure. Has facility maintained testing records?
- Has facility instituted medical surveillance program for employees who may be exposed to chemicals above their action levels or STEL for formaldehyde and made medical surveillance records available to employees and their representatives?

#### Other

- Has facility instituted practices to reduce potential chemical exposure (i.e., instituting good housekeeping practices)?
- If exposure may exceed PEL or STEL, has facility posted signs indicating potential exposure?

## Workplace Hazard Assessment/Certification

(29 CFR 1910.132-138)

### Purpose

Outline general requirements for eye, hand, and foot protection. Workplace hazard assessments help identify need for personal protective equipment (PPE) for each PWB process.

Applicability: Every PWB process potentially involves eye, head, and foot hazards. OSHA requires the use of PPE to reduce employees' exposures. Latex gloves are not recognized as proper PPE for chemical protection.

### COMPLIANCE CHECKLIST:

#### Written Plan

· Has facility prepared workplace hazard assessment/certification for each process that presents eye, hand, or foot hazard? Assessment should assess potential for eye, face, head, feet, hand, and body damage from the following hazards: impact, penetration, compression, chemical, heat/cold, light radiation, harmful dust, and electrical shock, noise, or other.

#### Training

- Has facility trained each employee that is required to use PPE based upon facility-specific hazard assessments? Training must cover reasons for PPE and its proper use, inspection, care and storage. Refresher training is required if employer has reasons to believe that employee lacks PPE knowledge, such as when changes in workplace render PPE obsolete.
- Has facility certified at least annually that each affected employee has received and understood PPE training? Inspect training records.

#### Recordkeeping

- Has facility certified in writing, at least annually, that hazard assessments have been completed?

#### Inspection/Maintenance

- Is PPE inspected daily, monthly and annually to ensure it is protective? Inspect inspection records.
- Is PPE maintained regularly? Inspect maintenance records.

#### Other

- After hazard assessments are completed, PPE has been assigned, and employees have been trained, employers must verify that employees are following proper PPE procedures. This can be done during audit by questioning employees that they understand PPE use, care, and storage.

## Lockout/Tagout Program (29 CFR 1910.147)

### Purpose

Prevent the unexpected re-energizing, start-up or release of stored energy on energized equipment during servicing and/or maintenance.

### Applicability

Applies to all PWB facilities. Standard applies to most servicing and/or maintenance activities which take place during normal production operations if employee is required to remove/bypass a guard or other safety device or an employee is required to place any part of his/her body into an area on a machine or piece of equipment where work is actually performed. Compliance is not required for minor tool changes, adjustment, and other minor servicing activities if they are routine, repetitive, and integral to the equipment's use provided that the work is performed using alternative methods of protection.

### COMPLIANCE CHECKLIST:

#### Written Program

- If any machines are covered by standard, does facility have a written program? Program must address employee training, periodic inspections, servicing or maintenance procedures, start-up and re-energizing procedures, and procedures for lockout/tagout of equipment.
- Does program contain specific procedural steps for shutting down, isolating, blocking, and securing each covered machine/equipment to control hazardous energy (i.e., separate procedure for each machine)?

#### Training

- Has facility provided initial training to all employees that work in manufacturing area on lockout/tagout program? Employers must train affected employees (i.e., ones that work in area where LO/TO will occur) and authorized employees (i.e., ones that will conduct LO/TO) on lockout/tagout procedures at their initial employment and whenever there is a change in equipment, job assignment, or when employer has knowledge that refresher training is necessary. Check training records.

#### Recordkeeping.

- Does facility maintain certification records showing compliance with training requirements? Employer must certify that employee training has been accomplished and is being kept up to date. Certification must contain each employee's name and date of training. Check records.
- Does facility maintain certification records showing compliance with inspection requirements? Certification must identify machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person who performed the inspection. Check records.

#### Inspection

- Does facility conduct inspections (at least annually) to ensure that major elements of program (i.e., employee training, written procedures, periodic inspection and hardware requirements) are being followed? Check inspection records.

## Respiratory Protection Program (29 CFR 1910.134)

### **Purpose**

Protect employees that operate in workplaces that exceed the Permissible Exposure Limit for air pollutants.

### **Applicability**

Requirements depend upon Permissible Exposure Limit (PEL) results for processes. If exposure from process exceeds PEL, requirements are triggered. Most common PWB operations that trigger requirements include etcher cleaning, pollution control, and emergency response. The following chemicals can generate toxic vapors during handling: formaldehyde, ammonia in alkaline etchant, hydrochloric acid, chlorine in cupric chloride, glycol ethers, and acid mists.

### **COMPLIANCE CHECKLIST:**

#### **Written Program**

- Has facility established written program that accounts for the different airborne hazards within its workplace? Program should govern the selection and use of respirators in these areas.
- Does program contain detailed maintenance procedures for cleaning and disinfecting, drying, storage, and inspection of respirators?
- Does program contain written procedures for training employees, providing pulmonary function and fit tests to affected employees, and maintaining workplace and medical surveillance records?

#### **Training**

- Have employees that will use respirators been trained on the proper use, care, storage, and inspection of respirators at least annually? Check training records.

#### **Recordkeeping:**

- Have employers evaluated the workplace and certified that the written program is implemented properly and that employees are using their respirators properly? Evaluation must be conducted as often as necessary to maintain the program's effectiveness.

#### **Testing/Inspection**

- Has facility provided employees that will use respirators with fit tests and pulmonary function tests (if necessary) and conducted medical surveillance of such employees to determine whether exposure to harmful levels of airborne contaminants may have occurred? Check testing and surveillance records.
- Are all respirators inspected routinely before (i.e., have "positive and negative" tests been conducted) and after each use (i.e., are they cleaned and disinfected)? Check inspection records.
- Have all self-contained breathing equipment been inspected monthly? Respirator inspection must include a check of the tightness of connections and condition of the facepiece, headbands, valves, connecting tube, and cannister (there must be at least 90% air in cannister). A record should be kept of inspection dates and findings for respirators maintained for emergency use.

## Injury and Illness Recordkeeping (29 CFR 1904.02)

### Purpose

Track facility rates of recordable injuries and illnesses.

### Applicability

All PWB facilities must comply with these requirements.

### COMPLIANCE CHECKLIST:

#### Recordkeeping

· Does facility keep workplace injury and illness records on OSHA 200 log as required by OSHA? Each page must be complete and include facility name, address and injury/illness totals at bottom of page.

· Does facilities have 5 years of OSHA 200 logs on-site?

· Does facility supplement OSHA 200 logs with supplementary record of recordable occupational injuries and illnesses (OSHA Form 101)? Accident and investigation forms (OSHA 101 Logs) must contain at least the same information as OSHA 200 Logs and must be available in the facility without delay and at reasonable times for examination. They must be maintained for at least five years.

#### Posting

· Did facility post annual summary of workplace injuries and illnesses from February 1 to March 1 each year?

· Is OSHA poster prominently displayed in facility where all employees can see it?

#### Other

· Does facility have a return-to-work program? This is not a federal requirement; however, the implementation of such a program constitutes good business practice because it helps facilities reduce their workers' compensation costs.

*Note: OSHA requires facilities to contact federal OSHA within 8 hours when there is a fatality or when 3 or more employees are hospitalized.*

## Fork Truck Standard (29 CFR 1910.178)

### **Purpose**

Establish safety requirements for industrial fork trucks and tractors.

### **Applicability**

If fork trucks are used on-site (e.g., shipping, receiving, and warehouse areas), program is required. Standard may also apply to powered walking units and electric motorized pallet jacks.

### **COMPLIANCE CHECKLIST:**

#### **Training**

• Are only licensed operators allowed to operate fork trucks? Refresher training should occur every three years unless employer has knowledge that refresher training is necessary. New standard requires classroom training and on-truck training. Check for training records.

#### **Inspection/Maintenance**

- Have fork trucks been inspected before each shift? It is recommended that employers have manufacturers inspect fork trucks periodically. Check for inspection records.
- Are fork trucks regularly maintained? Maintenance must occur by authorized individual such as manufacturer's representative. A copy of the maintenance report should be kept on file. Check for maintenance records.

## Bloodborne Pathogens Program (29 CFR 1910.1030)

### **Purpose**

Protect employees from exposure to blood or infectious materials in the workplace.

### **Applicability**

Applies to all PWB facilities. Standard is required whenever there is potential contact with blood or unknown body fluids. Standard covers first aid responders and custodians.

### **COMPLIANCE CHECKLIST:**

#### **Written Plan**

· Does facility have written exposure control plan consisting of a list of employees whose job potentially exposes them to bloodborne diseases, a list of all tasks that present exposure potential, and a procedure for evaluating exposure potential?

#### **Training**

· Have employees been trained on potential occupational exposure to bloodborne pathogens? Training must be repeated annually or when new information or updated information is made available. All first aid responders must be trained. Check training records.

#### **Other**

· If any contact with blood or infectious material is possible, does facility provide PPE? Employer is responsible for the maintenance and repair of all PPE.

· If employee is exposed to blood or infectious material, has facility implemented post-exposure follow-up?

· Does facility have document showing acceptance/denial of Hepatitis B vaccination for those that administer first aid?

· Does facility ensure that any items that may become contaminated with bodily fluids are properly disposed of in biohazard disposal bags, which can be obtained from a safety supply company?

## Hearing Conservation Program (29 CFR 1910.95)

### **Purpose**

Ensure that employers provide effective hearing conservation program.

### **Applicability**

Applies whenever employee noise exposures equal or exceed a eight-hour time-weighted average (TWA) of 85 decibels, a ten-hour TWA of 82 decibels or a twelve-hour TWA of 80 decibels depending upon work shift. Most common areas for a PWB facility are drilling, routing, and wet processing areas as well as support services (i.e., air chillers and compressors).

If facility keeps door closed and electric vibrator is used instead of pneumatic vibrator, area may be below threshold.

### **COMPLIANCE CHECKLIST:**

#### **Written Plan**

· Does facility have written hearing conservation program that covers the following elements: employee monitoring, audiograms, surveillance, training, and the provision of hearing protection devices?

#### **Training**

· Does facility provide basic training on how ear works and the use and importance of hearing protection on an annual basis? Check training records.

#### **Testing/Monitoring**

· Does facility provide baseline audiometric testing to potentially affected employees upon initial hiring at no cost?

· Does facility implement a monitoring system in areas where employee exposure may equal or exceed relevant decibel level depending upon work shift? Monitoring must be repeated whenever there is a change in the production process, equipment, or controls that increases noise exposure. Check monitoring records.

#### **Other**

· Does employer provide ear protection options to workers (i.e., ear plugs and alternative)?

· Does facility post notice indicating that standard is triggered and “ear protection is required” in affected areas of facility?

## Hazardous Waste Operations for Emergency Response

(29 CFR 1910.120)

### **Purpose**

Provide means to identify, evaluate, and control safety and health hazards, and provide a program for emergency response in hazardous waste operations.

### **Applicability**

All facilities must have HAZWOPR plan; however, extent of plan depends upon level of response chosen by facility. Facility can choose to respond in a minimal way (i.e., call fire department) or respond in a more involved way (i.e., emergency responders with self-contained breathing apparatus). Program applies when a chemical spill occurs and employees are designated to respond from other areas of facility.

### **COMPLIANCE CHECKLIST:**

#### **Written Plan**

- Has facility developed and implemented a written program for employees involved in hazardous waste operations, such as wastewater treatment?
- Does program identify, evaluate, and control safety and health hazards and provide for emergency response? Program must also cover employee training, medical surveillance, and site evacuation plans. Written program can be same program used for compliance with emergency response standard.

#### **Training**

- Have all on-site personnel been trained in hazardous waste operations before participating in any activity that could expose them to hazardous substances, safety, or health hazards? Review training records. Training can be accomplished through compliance with Hazard Communication standard.

#### **Medical Surveillance**

- Has employer developed and implemented a medical surveillance program for employees exposed to health hazards or hazardous substances, such as wastewater treatment operators?

## Employee Exposure Records (29 CFR 1910.1020)

### **Purpose**

Inform employees about chemicals to which they may be exposed. Chemicals of concern include formaldehyde, ammonia, acid mist, hydrochloric and sulfuric acid, amines (dry film) solvents, metals and nuisance dust. Facility should conduct monitoring and inform employees of chemicals for which they have knowledge of risk or upon employee complaint.

### **Applicability**

Applies to all PWB facilities.

### **COMPLIANCE CHECKLIST:**

### **Notification/Recordkeeping**

·Has facility notified employees about the availability of exposure records on an annual basis (some employers post exposure records when OSHA 200 Logs are required to be posted – February 30th for 30 days)

## Permit-Required Confined Space Entry Program

(29 CFR 1910.146)

### Purpose

Prevent injury to workers who must enter a confined space that contains or has the potential to contain a hazardous atmosphere or to engulf an entrant.

### Applicability

Standard only applies to PWB facilities that have vessels over four feet in depth (including sumps) that contain or have potential to pose a safety or health hazard. Internal space must be big enough to fit a person's body (e.g., chemical and pollution control tanks, boilers). If qualified vessels are present at facility and persons are authorized to enter such spaces, facility must prepare a written program governing entry, employee training, air testing, and rescue response. If facility does not allow entry, requirements are not triggered.

### COMPLIANCE CHECKLIST:

#### Written Plan

• Does facility have written program governing entry into confined spaces (i.e., list each confined space, where it is, the hazards it presents, how authorized employees will enter space and how air will be monitored)?

#### Training

• Has employer trained employees that are authorized to enter confined spaces on hazards, procedures, and skills necessary to perform job safely? Training must occur before employees are first assigned duty, when changes are made in procedure, and when changes occur in confined space. Proficiency must be established at least annually. Check training records.

#### Recordkeeping

• Does facility maintain records demonstrating identification and evaluation of hazards, existence of entrance permits, training certification and materials used for training? Check records.

#### Labeling

• Are all confined spaces labeled? If permit is required for entrance, that must be noted.

## Emergency Action Plan (29 CFR 1910.38)

### Purpose

Help facilities respond in emergency cases.

### Applicability

Standard applies to all PWB facilities. Employers are required to develop a written emergency response plan that addresses such items as evacuation routes, personnel roles, site security and control in the case of perils of weather, tornado, flooding, blizzard, fire, bomb threats, earthquakes, or fires.

### COMPLIANCE CHECKLIST:

#### Written Plan

- Does facility have written program that addresses emergency response (i.e., written emergency evacuation plan)?
- Does program address fire prevention (i.e., list of major fire hazards and types of fire protection)?
- Is the plan current?

#### Training

- Have all employees been trained in what they must do in the case of emergency? For example, do employees have knowledge of evacuation plan (e.g., exits)?

#### Testing/Drills

- Does facility test emergency alarm systems on a monthly basis? Check records.
- Does facility check fire extinguishers on a monthly basis? Check records.
- Are evacuation drills conducted semiannually?

**Step #2** Facility "Walk Through" Audit

Regular facility inspections are an integral part of an effective safety and health program. Unannounced formal team inspections should occur once a month. These formal inspections should be augmented by daily inspections by production personnel. The following audit checklist is designed to help evaluate a facility's compliance with more general OSHA requirements.

**Passageways and Exits**

- Are all exit signs illuminated?
- Are all exits unlocked and operable?
- Are all exits, exit routes, and aisles clear of obstructions?
- Are all floors clean, dry, and stable (i.e., free of water, oil, grease, tools, or other materials which could cause slipping, tripping, or falling)? If floors are wet, are warning signs in place?
- Are all stairs clear, unobstructed and with proper handrails

Comments: \_\_\_\_\_

**Chemical/Flammable Liquid Storage**

- Are storage cabinets in use?
- Are warning and nonsmoking signs posted?
- Are proper storage practices being followed (i.e., incompatible chemicals stored separately)?
- Are flammable liquids properly stored and/or handled in listed UL or FM safety cans, original containers, or flammable liquid storage cabinet?
- Are containers with self-closing lids provided for soiled or oily rags?

Comments: \_\_\_\_\_

**Electrical Equipment**

- Are all electrical panels clear and easily accessible and all circuit breakers properly labeled (i.e., function/use clearly indicated)?
- Is all electrical equipment properly grounded?
- Are there any frayed or defective electrical cords?
- Are all extension cords and power cords properly used (no overloading of circuits or plug extenders, extension cords used on temporary basis only)?

Comments: \_\_\_\_\_

**Production Areas**

- Are all tanks, pipes, containers, and drums properly labeled according to hazcom requirements and MSDSs available in production areas (if applicable)?
- Is PPE being worn (e.g., safety glasses in drilling, routing and all wet process areas, hearing protection in punch press, drilling, and routing areas if necessary) and appears to be in good condition?
- Are all machine guards in place? Employers must guard all machines, parts of machines, or component part of machines which create hazardous revolving, reciprocating, running, shearing, punching, pressing, squeezing, drawing, cutting, rolling, mixing or similar action.
- Are eye wash units/ emergency showers in an accessible, highly visible location that requires no more than 10 seconds to reach. Units/showers should be tested weekly to verify proper operation (i.e., water flows freely for 2 minutes).
- Does facility have a stocked first-aid kit readily available?
- Does it appear that there is adequate ventilation (i.e., no noticeable odor, visible emissions)?
- Do exhaust hoods operate properly (i.e., paper test)?
- Are dust collectors operating and free of leaks?

Comments: \_\_\_\_\_

**Fire Control**

- Are all fire extinguishers identified, readily accessible, and in fully charged condition (i.e., inspection tags on fire extinguishers indicates service in past 12 months; weight or gauge indicates charged)?
- Are all fire doors unobstructed and marked?
- Are all sprinklers system valves locked in an “open” position?
- Are all sprinkler heads unpainted and unobstructed (i.e., no storage within 18” of sprinkler heads)?

Comments: \_\_\_\_\_

**General Housekeeping**

- Have all spills been contained/cleaned?
- Are there any leaking pipes/hoses?
- Is facility generally clean and orderly?

Comments: \_\_\_\_\_



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