Hazard Communication Guide for Printing Operations

Version 2.0

A Guideline for Reducing Exposure and Risks Related to Hazardous Chemicals in the Printing Industry
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for Printing Operations

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The reader is expressly warned to consider and adopt all safety precautions that might be indicated by the activities described herein and to avoid all potential hazards. By following the instructions contained herein, the reader willingly assumes all risks in connection with such instructions.
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DISCLAIMER

This program is not intended to be an exhaustive, authoritative reference on the topic. It is a guidance tool to assist printing operations in meeting regulatory requirements associated with hazardous chemicals found and used in the workplace. The authors do not imply, infer, or suggest that the practices and recommendations provided in this reference are the only methods of compliance but rather possible methods. Each company should explore its own options based on factors unique to its operations.

Although every effort has been made to provide accurate information within this program, the authors, organizations, and individuals who assisted in its development make no representation or warranty, express or implied, as to the completeness, correctness, or utility of the information and related materials.

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**INTRODUCTION**

The Hazard Communication Standard (HCS), was amended by the Occupational Safety and Health Administration (OSHA) on March 26, 2012, to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The HCS is based on a simple concept—that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to in the workplace. The employees also need to know what protective measures are available to prevent any adverse effects of exposure. This is accomplished by ensuring that workers are provided sufficient information to recognize chemical hazards and take appropriate protective measures. Printing operations are required to provide this information through a comprehensive hazard communication program that includes methods for communicating hazards as well as training for employees.

Understanding the HCS will help employers provide their employees with a safer workplace. When employees have information about the chemicals being used at the facility, they can take steps to reduce exposures, which include following proper work practices and utilizing personal protective equipment. These efforts will help prevent the occurrence of work-related illnesses and injuries that can be caused by improper exposure to chemicals.

To comply, printing operations must establish a workplace program and communicate the appropriate information to their workers. This publication is a general guide for printing operations to help them understand what the HCS requires and develop a hazard communication program.

**HOW TO USE THIS PROGRAM**

This document provides basic guidance for a printer to effectively communicate and train employees who may handle, use, or be exposed to hazardous chemicals within the printing industry as is required by OSHA. Effective communication and training are critical components to understand important information related to chemicals, container labeling, and safety data sheets.

The information contained within this guide focuses on the safety regulations, operations, and chemicals typically found and used for commercial printing. It addresses typical applications related to safe work practices, written programs, chemical inventories, safety data sheets, container labeling, as well as employee training.

This guide is not intended to take the place of an existing safety program in that it does not provide all of the necessary site-specific information that would be required to meet all aspects of a complete program.

While using this guide, if uncommon or unique hazards not addressed by this guide are discovered, a hazard analysis should be performed to determine the best course of action to reduce or eliminate the exposure to the hazard.
Supplemental information that can further assist you with meeting the requirements of the HCS and implementing your hazard communication program is available on the Printing Industries of America Hazard Communication webpage at www.printing.org/HAZCOM. There you will find links to additional resources, including the full HCS regulation, OSHA guidance documents, and a glossary of terms as well as a sample written program and training tools (member login required).

If you already have an effective safety compliance program in place, chances are you have been doing most of the steps described in this guide, and all that may be required is to re-focus your efforts on the site-specific operations that are considered possible exposure hazards.

**CORE ELEMENTS OF THE HAZARD COMMUNICATION STANDARD**

The OSHA Hazard Communication Standard CFR 1910.1200 is composed of five general elements, each having specific compliance requirements. These core elements are as follows:

- Chemical Inventory
- Safety Data Sheets
- Container Labeling
- Employee Training
- Written Compliance Program


Under the regulations, employers are required to develop a list of hazardous chemicals that are present in the workplace as part of the written hazard communication program. The list serves as an inventory of hazardous chemicals which are present and that require a safety data sheet (SDS).

Printing operations must list the names of all hazardous chemicals used in the workplace by using the identity referenced on the SDS. This identity is often a common name, such as the product or trade name (i.e., Wash-Away). You do not have to include the hazards of each chemical on the chemical inventory, since employees are informed of hazards through the training, SDSs, and the container labels.

The first step in developing the list is to inventory your workplace to determine which products are being used in the operation. It can also be helpful to refer to purchasing records, as they indicate which products would also be present in the workplace.

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**Terms to Know**

- **GHS.** Globally Harmonized System of Classification and Labeling of Chemicals
- **Hazardous Chemical.** Any chemical, material, or product which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified
- **HCS.** Hazard Communication Standard
- **PPE.** Personal Protective Equipment
- **SDS.** Safety Data Sheet
Keep in mind when taking inventory that hazardous chemicals can be found in all physical forms such as solids, gases, vapors, fumes, and mists and may or may not be in containers. For example, chemicals in pipes, welding fumes, and spray powder are sources of chemicals.

Also, it should be noted that the hazardous nature of the chemical, use, and the potential for exposure are the factors that determine whether a chemical is covered under the HCS. If it is not hazardous or is a personal consumer product used in a manner that a consumer would use it, it is not covered by the HCS. Some examples include foods, personal hygiene articles, and rubbing alcohol in a first aid kit. These exemptions allowed under the HCS for various chemicals or workplace situations should not be included in the chemical inventory list.

As you review the products used, read all container labels and SDSs provided by the suppliers for hazard information. Make a list of all products with chemicals in the workplace that are potentially hazardous. In addition, you should note on the list the location(s) of the products within the workplace and an indication of the hazards that are identified on the label and/or SDS. This collection of information will assist you later in developing the written program.

The chemical inventory must consist of all potentially hazardous chemicals that are produced, imported, or used by the company. The identity of the hazardous chemical on the inventory is often the common name of the chemical, such as the product or trade name.

It is suggested that the chemical inventory be organized by department where the hazardous chemicals are used, although the list can be compiled for the workplace as a whole.

Chemical inventories must be updated regularly to ensure all hazardous chemicals are accounted for and that the most current hazard information is included. The updated inventory should be maintained in the location of the SDS binder. All employees must know the location of or how to access the chemical inventory and SDS binders.

Once you have compiled the inventory of hazardous chemicals in the workplace, the next step is to determine if you have received SDSs for all of them. Check your files against the inventory you have just compiled.

If any SDSs are missing, contact your supplier and request one. It is a good idea to document these requests, either by copy of a letter or a note regarding telephone conversations.
If you have SDSs for chemicals that are not on your list, figure out why. Maybe you don’t use the chemical anymore, or perhaps it was missed in the survey of products used in the operations.

Some suppliers do provide SDSs for products that are not hazardous. These do not have to be maintained by you. If you have questions regarding the hazard status of a chemical, contact the manufacturer, distributor, or importer.

### IMPORTANT!

You should not allow employees to use any hazardous chemicals for which you have not received an SDS. The SDS provides information you need to ensure you have implemented proper protective measures for exposure.

### SAFETY DATA SHEETS (SDS) – 29 CFR 1910.1200(g)

Under the regulations, chemical manufacturers and importers are required to develop an SDS for each hazardous chemical they produce or import. Distributors of the hazardous chemicals are responsible for ensuring that their customers are provided a copy of these SDSs. In turn, you as an employer must have an SDS for each product that contains a hazardous chemical which you have present or use.

An SDS is issued and provided by the manufacturer and/or supplier of the product/substance. If you do not receive an SDS automatically, you should request one from the manufacturer or supplier. If you receive an SDS that is inadequate, you need to request an appropriately completed one. If your request for a data sheet or for a corrected data sheet does not produce the information needed, you need to contact your local OSHA Area Office for assistance in obtaining the SDS.

The safety data sheet must at least be provided in English. Printing operations which have employees who speak languages other than English can request SDSs in the other language from the manufacturer or supplier and provide them to the appropriate employees.

Under the rule, the role of the SDS is to provide detailed information on each hazardous chemical, including its potential hazardous effects, its physical and chemical characteristics, and recommendations for appropriate protective measures. This information should be useful to you for designing protective programs, selecting and assigning personal protective equipment, and devising a policy on how to respond to spills and releases of the product. As an employer you must become familiar with safety data sheets and with chemical terminology.

The information provided within all SDSs must conform to a specific 16-section format and must follow a specific sequence.

The standardized format of the 16-section SDS is as follows:
• **Section 1. Identification**
  Includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

• **Section 2. Hazard(s) identification**
  Includes all hazards regarding the chemical; required label elements.

• **Section 3. Composition/information on ingredients**
  Includes information on chemical ingredients; trade secret claims.

• **Section 4. First-aid measures**
  Includes important symptoms/effects, acute, delayed; required treatment.

• **Section 5. Fire-fighting measures**
  Identifies suitable extinguishing techniques, equipment; chemical hazards from fire.

• **Section 6. Accidental release measures**
  Lists emergency procedures; protective equipment; proper methods of containment and cleanup.

• **Section 7. Handling and storage**
  Lists precautions for safe handling and storage, including incompatibilities.

• **Section 8. Exposure controls/personal protection**
  Lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

• **Section 9. Physical and chemical properties**
  Lists the chemical’s characteristics such as appearance, pH, flashpoint, vapor pressure, evaporation rate, upper and lower explosivity limits, etc.

• **Section 10. Stability and reactivity**
  Lists chemical stability and possibility of hazardous reactions.

• **Section 11. Toxicological information**
  Includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

• **Section 12. Ecological information (optional)**
  Description of wastes and information on their safe handling and methods of disposal.

• **Section 13. Transport information (optional)**
  Hazardous Materials or Dangerous Goods shipping information according to 49CFR, IATA, etc.

• **Section 15. Regulatory information (optional)**
  Safety, health, and environmental regulations specific to the product.
Section 16. Other information
Includes date of preparation or last revision.

It is important to note that while sections 12–15 will always be included within an SDS, OSHA will not enforce the information requirements in these sections as these areas are not under its jurisdiction. However, other regulatory agencies such as the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) may require information within these sections and cover their applicability.

If no relevant information is found for any subheading within a section on the safety data sheet, the chemical manufacturer, importer, or employer preparing the safety data sheet must mark it to indicate that no applicable information was found.

SDS Management
SDSs may be kept in any manner, such as Internet sites, CD, or hard copy. However, the employer must ensure that, in all cases, the required SDS is readily accessible during each work shift to employees when they are in their work area(s). This may be accomplished in many different ways. Some printing operations keep the SDSs in a binder in a central location. Others, particularly in workplaces with large numbers of chemicals, provide digital copies and provide access through computers. You must decide what is appropriate for your particular workplace. As long as employees can get the information when they need it, any approach may be used as long as the employee has access to the SDSs themselves. When electing to use online or other remote access for SDSs you must ensure that the SDSs are for the specific products being used, are accurate, and that there are no barriers to employee access to the SDSs.

In order to ensure that you have a current SDS for each chemical in the plant as required, and that you provide employee access, the assigned person handling company safety must look for the following types of information in your written program:

- Designation of person(s) responsible for obtaining and maintaining the SDSs
- How SDSs are to be maintained in the workplace
- How employees can obtain access to SDSs when they are in their work area during the work shift
- Procedures to follow when the SDS is not received at the time of the first shipment

IMPORTANT!
Under the regulation 1910.1200, “Access to employee exposure and medical records,” it states that safety data sheets or some record of the chemical identity (chemical name) of the substance or agent, where it was used, and when it was used is retained for at least thirty (30) years. Therefore, once a chemical is no longer used, the SDS for that substance must be dated as to when it was taken out of use and then archived as obsolete for at least thirty (30) years.
Again, the list of hazardous chemicals required to be maintained as part of the written program will serve as an inventory and help identify if an SDS is received or missing. As new products are purchased, the list should be updated. Some companies have found it convenient to include SDS requests on their purchase order.

**Hazards Not Otherwise Classified**

One of the revisions included in the changes was the inclusion of hazards not otherwise classified. This category is designed to address workplace hazards that have not yet been defined in the regulations.

OSHA’s definition of Hazards Not Otherwise Classified (HNOCs) [1910.1200(c)]:

“Hazard not otherwise classified (HNOC) means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section.”

If scientific evidence has proven that something has a physical or health hazard, you need to identify the chemical and cover it in your HazCom program. OSHA made this change because it would be almost impossible for them to identify every dangerous hazard in the workplace.

One other important aspect of HNOCs is also pointed out in the latter part of its definition:

“This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).”

In essence, OSHA is forbidding businesses from overregulating hazards that they have already identified as hazardous. For instance, flammable liquids are defined as any liquids with a flash point less than 100°F. If a business had a chemical with a flash point of 200°F, employers would not be able to call it “flammable” just to be safe.

OSHA has not yet identified any specific HNOCs. However, if a company finds that one of its products meets the definition of an HNOC, then they must communicate that hazard to their employees. This will be done through additional training for employees, and the hazards must be addressed on safety data sheets (SDSs). However, HNOCs do not have to be labeled, as none of the extant labels would apply [29 CFR 1910.1200(f)(1)].

**Combustible Dust**

As part of the Hazard Communication Standard, OSHA will address combustible dust as a “hazardous chemical.”
Under the HCS, products that possess a combustible dust hazard as shipped must be addressed by the product manufacturer on SDSs and, if applicable, product labels. For example, SDSs and product labels for containers with spray powder would have to carry the warning. The product label and SDS would have to include the signal word “warning” and the hazard statement “May form combustible dust concentrations in the air.”

For a product such as paper that poses no combustible dust hazard as shipped but has the potential to become a combustible dust hazard from downstream processing, the SDSs for paper products may have a warning statement to the effect of “further processing or handling may form combustible dust concentrations in air.” What this means for you is that you must review SDSs and labels for chemicals that could be a combustible dust hazard and take appropriate action to control the accumulation of combustible dust in the operation.

To address the more typical combustible dust hazard issues, there are two core activities. First is identifying and maintaining the sources of combustible dust generation. This can include but is not limited to such equipment and operations as balers, perfect binders, spray powder units, and dust collection systems.

Second, you should monitor and clean the accumulation of combustible dust that occurs within your facility. Periodically inspect all production locations, under and around equipment, as well as elevated surfaces such as building beams, light fixtures, and ceilings. After identifying the accumulated combustible dust, you must establish a regular cleaning schedule to remove or significantly reduce the accumulated combustible dust to eliminate the risk of fire and explosion hazards.


Chemical hazard warning labels are one way of informing employees of hazards and how to protect themselves when using or storing that material. Hazard warning labels must be placed on every container with hazardous chemicals located in the workplace. There is only one exception to this requirement, and it is for in-plant or secondary chemical containers and is explained later in this section.

The chemical manufacturer will make sure that each shipped container of hazardous chemicals is labeled, tagged, or marked. Remember that Hazards Not Otherwise Classified are not required on the container label and therefore will not be present on the shipped container label.

Any shipped hazardous chemical container must have the following information:

- Product Identifier
- Signal Word
- Hazard Statement
- Pictogram(s)
- Precautionary Statement
- Manufacturer Identifier
**Product Identifier:** The name or number used on the label and on the SDS. It can be a chemical name, product name, or some other unique identifier that allows you to locate the SDS quickly.

**Signal Word:** A single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are “danger” and “warning.” “Danger” is used for the more severe hazards, while “warning” is used for less severe hazards.

**Hazard Statement:** A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

**Pictogram(s):** A symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e., a red diamond). There are nine pictograms under the GHS. However, only eight pictograms are required under the HCS.

The HCS provides nine pictograms. The hazard pictograms and their corresponding hazards are shown at bottom right.

OSHA requires that these pictograms must be in the shape of a square set at a point, with a black hazard symbol on a white background with a clearly visible red border, not black. The red border/outline is universal and increases recognition and comprehensibility. The red
frame is required regardless of whether the shipment is domestic or international. OSHA also requires that all red borders printed on a label have a symbol printed inside. No blank red borders are permitted.

**Precautionary Statement:** A phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling of a hazardous chemical.

**Manufacturer Identifier:** Name, address, and telephone number.

### Other Label Requirements

All chemical container label information must be prominently displayed and provided in at least English. Printing operations which have employees who speak languages other than English should consider adding the information in the other languages.

Employers must ensure that every chemical container received is properly labeled. If the manufacturer label is removed or defaced, the container must immediately be re-labeled with the required information. Employers must also ensure that all workplace labels are legible and prominently displayed on the container(s) throughout each work shift.

### In-Plant Labels and Secondary Containers

If materials are transferred into in-plant containers or secondary containers such as plastic squeeze bottles, the employer must make certain that these containers are labeled as well. To ensure this task is completed, it is advisable to designate a person to be responsible for guaranteeing that all received containers are properly labeled and that all in-plant containers (secondary containers) are properly labeled.

The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use (within one shift) of the same employee who performs the transfer.

An important thing to keep in mind is that labeling of containers is a continuous task in that containers of hazardous chemicals can and do become illegible or fall off due to the contents of the containers spilling onto the label surface or from normal wear after the container is repeatedly handled.

The HCS allows some flexibility regarding an alternative system to be used in a workplace for container labeling. Whether re-labeling a shipped container or labeling a secondary container, you can either choose to replace a label by using a manufacturer-supplied label, or you

### SPECIAL NOTE:

Any time an employer becomes aware of any new and significant information regarding the hazards of a chemical, the employer must revise the labels for the chemical. Many times the employer can contact the manufacturer or supplier for a new label rather than recreating the label in-house.
can use your own alternative in-plant labeling system as long as it meets the requirements as called for under the Hazard Communication standard.

There are several options that can be used to meet this requirement, and they are as follows:

1. Use a label that contains the specified information for labels on shipped containers, which must contain:
   - Product Identifier
   - Signal Word
   - Hazard Statement
   - Pictogram(s)
   - Precautionary Statement
   - Manufacturer Identifier

2. Use a label or other product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals so that employees can reference the SDS, product label, or other information that will provide the specific information regarding the physical and health hazards of the hazardous chemical.

The important thing to remember is that the purpose of a label under the HCS is to serve as an immediate visual warning of the hazards associated with the chemical.

For individual stationary process containers, such as large ink totes and tanks, the employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to the individual stationary process container as long as the alternative method identifies the containers to which it is applicable and conveys the necessary information required by the regulation to be on a label.

Whichever system is developed and used for in-plant labeling, the information used on the alternative labels must not conflict with the HCS requirements, hazard warnings, or pictograms.


The purpose of hazard communication training is to explain and reinforce the information presented to employees through the written program, chemical inventories, container labeling, and safety data sheets as well as to ensure they know the appropriate precautions they must take to protect themselves from the hazards.

Training helps employees understand the many pieces of information that relate to chemical hazards. In the typical printing environment a worker can be confronted by numerous shipping containers, in-plant containers, labels, and SDSs. Appropriate training can clarify this sometimes overwhelming information by presenting the necessary information in a structured and logical manner.
In addition, employees themselves have an important role regarding the effectiveness of a safety program in that they need to obey and follow all rules and regulations as stated by OSHA as well as all policies established and communicated by their supervisor. Therefore, properly training employees is the key to having an effective hazard communication program.

Under the HCS employees must be provided with effective information and training on hazardous chemicals present at their work area at the following times:

- At the time of their initial assignment
- Immediately whenever a new physical or health hazard is introduced into the worksite
- Whenever there is a change to any element of the company’s HCS program
- When employees are transferred to a new position where they will be exposed to physical or health hazards where they had not received prior training.

The information and training provided can either be conducted by addressing the categories of hazards (such as flammability or carcinogenicity) or by covering specific chemicals.

Training topics shall include:

- Scope of the Hazard Communication Standard
- The location and availability of the written program
- Hazardous properties of all chemicals present and worked with
- Safe handling procedures and measures such as appropriate work practices, emergency procedures, and personal protective equipment to be used
- How to read and identify labels on hazardous chemical containers
- The workplace in-plant labeling system
- How to locate and read safety data sheets
- Physical and health hazards of the chemicals used
- Means to detect releases of hazardous substances and appropriate procedures to address them
- Appropriate personal protective equipment, where it is located, and how to use it

All employees can potentially be exposed to hazardous chemicals in the workplace; therefore, all employees need to at least be provided with an awareness level of hazard communication training. However, for those employees who are assigned to use and handle hazardous chemicals as part of their job, full hazard communication training is required.

Each new hire should be initially provided with a safety orientation session that covers the company’s hazard communication program, as well as any task that the employee would be expected to perform immediately involving working with hazardous chemicals.

In addition, all on-the-job training should be planned, documented, and communicated to all workers assigned to use and/or handle hazardous chemicals so that once they work with the
hazardous chemicals, all hazards are pointed out along with the safe procedures for using such substances.

**Written Programs – 29 CFR 1910.1200(e)**

Under the HCS the employer is required to develop a written program that describes the site-specific details of the company’s hazard communication program and how the company will implement the requirements of the standard. The written program identifies and represents all of the elements that must be developed and implemented under the HCS, including chemical inventories, labeling, SDSs, and employee training and is often requested as part of an OSHA inspection.

The length and complexity of the written program will vary depending on the operation and company size. As a minimum the written program needs to include the following requirements:

- A description of how the printing operation will meet the labels and other forms of warning, safety data sheets, and employee information and training requirements.
- A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas).
- The methods the printing operation will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.
- How outside contractors will be informed about possible exposures to hazardous chemicals in the workplace, including:
  - The methods the printing operation will use to provide the other employer on-site access to safety data sheets for each hazardous chemical the other employer’s employees may be exposed to while working.
  - The methods the printing operation will use to inform others of any precautionary measures that need to be taken to protect employees during the workplace’s normal operating conditions and in foreseeable emergencies.
  - The methods the printing operation will use to inform others of the labeling system used in the workplace.

Printing Industries of America has developed a sample program that would be applicable to most printing operations. This sample program is available with the online resources at www.printing.org/HAZCOM (member login required). Keep in mind that the sample program is generic in application, and it must be modified to reflect site-specific materials and conditions of the company.
For example, the written plan would identify the location where written materials will be made available to employees, where to find the chemical inventory, SDSs, etc. It also should indicate who at the company is responsible for the various aspects of the program in your facility.

During an inspection OSHA will evaluate the HCS program to determine if the written program describes how the requirements for labels and other forms of warnings are met; if there is a system for collecting, reviewing, and storing safety data sheets; and whether employee communication, information, and training are provided and effective.

**Hazardous Chemicals**

Hazardous chemicals are those materials and/or substances that are present in the workplace and which are capable of causing harm to an exposed employee. This can include liquid chemicals, solids, dusts, mixtures, and other common materials such as paints, fuels, and solvents.

The HCS defines a hazardous chemical as a chemical that is a physical hazard, health hazard, a simple asphyxiant, combustible dust, or pyrophoric gas.

**Types of Hazards**

**Physical Hazards**
- Explosives
- Flammables
- Oxidizers
- Gases Under Pressure
- Self-Reactive Chemicals
- Pyrophorics
- Corrosives

**Health Hazards**
- Acute Toxicity
- Skin Corrosion/Irritation
- Eye Damage/Eye Irritation
- Respiratory
- Cell Mutagenicity
- Carcinogenicity
- Reproductive Toxicity
- Specific Target Organ Toxicity
- Aspiration Hazard
PERSONAL PROTECTIVE EQUIPMENT

Working in conjunction with the HCS is another OSHA standard covering personal protective equipment (PPE). Under the OSHA standard 29 CFR 1910.132 it states that PPE must be provided wherever it is necessary to protect employees from workplace hazards. PPE includes devices for protecting the eyes, face, head, and extremities against hazards, including chemical hazards.

Employees who work with chemicals or hazardous substances will perform various tasks that may expose them to potential hazards, including spills, splashes, vapors, misting, etc., that can cause or contribute to physical injuries or illnesses.

The basic component of any PPE program is performing a hazard assessment of the activities, tasks, and operations to identify exposures to hazards and establish the means to eliminate the hazard or minimize the exposure through the use of PPE. The hazard assessment must be formalized, which means that a written document must be created that is dated and signed by the individual performing the assessment.

A hazard assessment is a technique that focuses on job tasks and a means of breaking a task down into discrete activities and providing a method of identifying and addressing the hazards within each of the activities. The assessment also provides a compilation of the hazards that can then be communicated to the employees.

The printing operation must assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE. This includes hazards associated with chemicals. If such hazards are present, or are likely to be present, the printing operation is required to select and have employees use the types of PPE that will protect against the identified hazards.

Since employees will perform a variety of activities through the course of a day, week, or month, it may be necessary to observe an operation or task for a longer period of time in order to identify all hazards.

Further, in actual production environments, it should be expected that distractions or lack of attention to the job are going to occur. The hazard analysis needs to consider and address the possibilities arising from these situations.

There are four basic steps to a hazard assessment:

- Select a job, task, or process.
- Identify the hazards or sources of injury in the task or process.
- Identify the employee exposure to a hazard by each task.
- Determine how to eliminate the hazard or reduce the exposure to the hazard as much as possible.
In choosing where to start the hazard assessment, the priorities can be established in several ways:

- Choose a task or process performed the most.
- Choose the most abundant type of chemical or substance present in the facility.
- Choose the most hazardous chemical or substance.
- Review the OSHA Injury and Illness logs and Worker’s Compensation records.
- Request employee input as employees handling or using chemicals or substances can more easily identify concerns.

**SAFE WORK PRACTICES**

Nearly any printing production involves some form of hazardous chemical, whether it may be printing ink or toner, cleaning solvent, or adhesives. Any of the tasks in a printing operation could involve an employee who may need to use, handle, or clean up a chemical or hazardous substance and would require a measure of control or prevention in order to ensure worker safety. Safe work practices are important control measures and are an essential part of a hazard communication program, because warning labels and safety data sheets alone cannot prevent contact or exposure. Furthermore, companies should properly train employees in how to respond if they are using, handling, or otherwise exposed to a chemical or hazardous substance, and must also ensure its employees use safe work practices at all times.

Safe work practices are the administrative controls that can be used to reduce the likelihood of exposure to a chemical through understanding the hazards and the tasks to be performed. Safe work practices include enhanced employee training, on-the-job training, manufacturer guidance documents, personal protective equipment, standard handling procedures, and effective communication.

With safe work practices, the additional protection is premised upon managers, supervisors and operators developing and following proper work methods. Work practices alone do not physically protect operators from chemical hazards. Safe work practices work in conjunction with effective personal protective equipment.

**Training.** Every employee working with or around chemicals should receive thorough instruction on the proper use of the chemicals in order to recognize hazards as well as measures to protect them from those hazards. Training should be both formal and informal and include warning signs, labels, and safety data sheets, and standard handling procedures and manufacturer guidelines. Employees who have not received training should not be allowed to use or handle chemicals or clean up spilled chemicals.

**Communication.** Supervisors need to establish an effective means of communication for employees to understand and recognize chemical hazards as well as how to report any unsafe conditions or activities immediately. Effective communication is also critical between
employees working together with chemicals in order to alert other employees of hazardous conditions or situations.

**Expect the Unexpected.** Hazards never relax and neither should safety awareness. Having the proper safety awareness lessens the chances of injuries and illnesses. The majority of chemical-related incidents occur when one least expects it. Employees handling and using chemicals should maintain complete concentration on the task that is being performed.

**Non-Routine Tasks**

Since tasks could arise which are not performed on a routine basis (for example, incidental chemical spill response, waste cleanup, etc.), these tasks should be identified and addressed through site-specific operating procedures and specific training. Before performing any non-routine task, employees should be instructed to contact their supervisor to approve the task activity, review all applicable SDSs, communicate to employees any associated hazards, and if applicable, assure all essential personal protective equipment and/or emergency equipment is available and operational.

Incidental chemical releases by either a spilled or ruptured hazardous waste container, which does not have the potential for becoming an emergency, are covered under this program and in conjunction with the emergency evacuation program.

Any uncontrollable spill or release of a hazardous substance—those which pose a safety and health hazard, and those which exceed the scope of the hazard communication program—requires a complete facility evacuation and notification of emergency services summoned by dialing 9-1-1.

**Incidental Spill Response**

A company may occasionally experience a small/incidental spill of chemicals that will need to properly and safely be contained and cleaned as a non-routine task. Your company will therefore need to evaluate your facility’s chemical storage and use activities and determine where spills could occur and develop a procedure on how to handle such non-routine spills.

The assessment of incidental spills should include the identification of the chemical, the hazards associated with the chemical, appropriate spill-containment material to clean or contain the chemical, and what PPE is appropriate for performing the response.

Your company should also determine what it considers a simple/incidental spill and a major spill. Under normal circumstances and the scope of the hazard communication standard, major spills should only be handled with outside assistance, and you should identify and communicate to employees the best and most expeditious means to contact the outside assistance.
The following are the basic steps involved in handling incidental spills:

1. Alert employees in the immediate area that a spill has occurred.

2. Evaluate the toxicity, flammability, and other hazardous properties of the chemical as well as the size and location of the spill to determine whether evacuation or additional assistance is necessary. Large spills and toxic spills are beyond the scope of this procedure.

3. Initially contain any hazardous liquid spills by using pigs, spill-absorbent, or other absorbent materials. If releases occur within a room, contain the release also by keeping doors closed and using absorbent materials near the door thresholds.

4. Cordon off the spill area to prevent further exposure to or contamination of employees.

5. Notify management that a spill or release occurred.

6. Identify the hazardous substance if possible and consult the applicable SDS for other precautions.

7. Obtain applicable cleaning supplies/equipment and the appropriate PPE, if needed.

8. Wear the appropriate PPE such as gloves, goggles, apron, shoe covers, or respirator. The PPE selection will be based on the hazardous material present.

9. Absorb liquid spills using paper towels, spill pigs, vermiculite, or sand. Place the spill pigs over the spill to draw in the free liquid. Sprinkle vermiculite or sand over the surface of the free liquid.

10. Place the used absorbent materials and waste in proper containers for proper disposal along with contaminated disposable gear, such as gloves.

11. If the spill exceeds the scope of the employees’ experience, training, or willingness to respond, the employees must call for emergency assistance.

**Outside Contractors**

Your company may on occasion use outside contractors for various work in and around your facility. Any contractors working in your company’s facility or jobsite must be informed of your company’s written Hazard Communication program as well as how to locate or request SDSs and information on any in-plant labeling system. It is generally the responsibility of the contractor’s company to properly train their employees in the avoidance of chemical exposures or emergency procedures. However, it is required that prior to the start of any job involving contractors, your company should brief the contractor on the precautionary measures that need to be taken to protect employees during normal operating conditions and in foreseeable emergencies.
A recommendation with regard to working with contractors is to insist that if the contractor introduces any product containing hazardous chemicals into the facility they must supply an SDS for those products. Any new hazard information presented by such products must then be communicated immediately to any of your employees that could be potentially exposed.

Also, as a policy, your company should require that any leftover hazardous chemicals brought to your company by the contractor be removed by the contractor once they are finished with their work.
ABOUT PRINTING INDUSTRIES OF AMERICA

Printing Industries of America is the largest graphic arts trade association, representing an industry with approximately one million employees and serving the interests of thousands of member companies through advocacy, education, research, technical information, and cost-saving resources. Together, Printing Industries of America and its local affiliates offer members the products and services that enhance their growth, efficiency, and profitability.

The Environmental Health and Safety (EHS) Department at Printing Industries of America has a number of resources available to assist printers with the process of establishing a safety program and complying with regulatory requirements, including sample safety programs, fact sheets, safety posters, and additional resources that can be found online at www.printing.org/ehs. The EHS staff is also available to answer OSHA-related questions via phone (800-910-4283) or email (rhartwig@printing.org), and provides consulting services such as assisting with, preparing for, and responding to an OSHA inspection and on-site training and safety compliance auditing.