OSHA has revamped its Hazard Communication standard by adopting the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. The changes are intended to improve safety and save lives, but will require a well-planned process on the part of healthcare organizations to be effective.

The Hazard Communication standard is one of the most cited and penalized OSHA standards, the second highest among offices and clinics of doctors of medicine. Author Marge McFarlane, PhD, MT (ASCP), CHSP, CHFM, HEM, MEP, CHEP, will walk you through the revisions to help you better prepare for these important, life-saving changes.
The Compliance Guide to the OSHA GHS Standard for Hazardous Chemical Labeling

Marge McFarlane, PhD, MT (ASCP), CHSP, CHFM, HEM, MEP, CHEP
Contents

Rev 2. 12 26 13

About the Author ............................................................... v

Chapter 1: Introduction ..................................................... 1
  Background ........................................................................ 1
  Globally Harmonized System ........................................... 5
  Hazard Communication Elements Still in Effect ............... 7

Chapter 2: Safety Data Sheets ............................................. 9
  Advantages of a Uniform Format ....................................... 9
  Section 1: Identification .................................................. 10
  Section 2: Hazard(s) Identification .................................... 11
  Section 3: Composition/Information on Ingredients .......... 14
  Section 4: First Aid Measures .......................................... 15
  Section 5: Firefighting Measures ...................................... 16
  Section 6: Accidental Release Measures .......................... 16
  Section 7: Handling and Storage ...................................... 17
  Section 8: Exposure Controls/Personal Protection ............ 18
  Section 9: Physical and Chemical Properties .................... 19
  Section 10: Stability and Reactivity ................................... 20
  Section 11: Toxicological Information ............................. 21
  Section 12: Ecological Information .................................... 22
  Section 13: Disposal Considerations ............................... 22
  Section 14: Transport Information ..................................... 22
  Section 15: Regulatory Information ................................... 23
  Section 16: Other Information .......................................... 24
### Contents

**Chapter 3 Hazard Classifications** ............................................. 25  
- Pictograms.................................................................................. 27  
- Placement of Pictograms.......................................................... 38

**Chapter 4 New Labeling Requirements** ....................... 39  
- What the Labels Must Include............................................... 40  
- Supplemental Information..................................................... 44  
- Secondary Containers ............................................................ 45

**Chapter 5 Implementation and Training** ....................... 51  
- New Label Elements............................................................... 52  
- Safety Data Sheet Format....................................................... 53  
- Implementation Timeline...................................................... 54  
- Challenges Remain ................................................................. 56

**Appendix Overview: Sample Tools and Documents** . 57

**References** ............................................................................. 139
Marge McFarlane, PhD, MT (ASCP), CHSP, CHFM, HEM, MEP, CHEP

Marge McFarlane, PhD, MT (ASCP), CHSP, CHFM, HEM, MEP, CHEP, is an independent safety consultant with more than 38 years of healthcare experience. She has provided education, emergency management and safety plan review, life safety, and infection prevention facility surveys for healthcare and businesses in Wisconsin and across the nation since 2005.

Prior to working with the State of Wisconsin Hospital Preparedness Program, McFarlane led the environment of care committee at a general medical-surgical hospital in northwestern Wisconsin. She has been involved in hospital safety activities since 1990, serving as lab safety officer as well as an occupational safety resource for local manufacturing businesses. She is a frequent presenter in the areas of safety, bloodborne pathogens, environment of care, infection control for construction, emergency management, HICS, and hospital exercise design. McFarlane is also a reviewer for the HCPro medical and dental OSHA manuals and OSHA e-learning programs.
Chapter 1

Introduction

Background

The Hazard Communication Standard 29 CFR 1910.1200 has been in effect since 1983. With the 1994 amendments approved by Congress, the Occupational Safety and Health Administration (OSHA) billed it as the employee “right to know” standard. What that really means is that employees must be able to access information about the hazards related to the chemicals in their workplace. The challenge comes from the methods of communicating those hazards. Several methods have been used over time to manage the message of the chemical hazards.

The National Fire Protection Association (NFPA) developed a standard method of communication about chemical hazards for firefighters responding to fires and emergency spills. The NFPA 704 standard has been in effect since 1961. The 2012 edition of NFPA 704 specifically states that the communication of chemical hazards applies to “commercial/industrial/institutional settings where hazardous materials are manufactured, used or stored.” The standard goes on to state that “it does not apply to transportation
or the general public and is not intended to address occupational exposure, explosives, chronic health effects or carcinogens” (NFPA 2012).

Most healthcare employees are familiar with the tricolored (blue, red, yellow) NFPA square-on-point (often called the NFPA diamond; see Figure 1.1) symbol for ranking hazards related to health, flammability, instability (reactivity), and other special issues. One of the biggest challenges has been to accurately rate chemicals for their health hazards. Chemicals can cause health issues from a single short-term (acute) exposure as well as from multiple long-term (chronic) exposures. Irritation and chemical burns are usually the result of single short-term exposure, with the severity of injury being determined by the amount of chemical in the exposure and the immediate health hazard. These are the types of health hazards rated by the NFPA system. Those chemicals with a rating of “4” were potentially a more severe hazard than chemicals with a rating of “1.”

**Figure 1.1** NFPA square on point (diamond).
Cancer and sensitization (as in a latex allergy) are more often seen when personnel are exposed to smaller amounts of chemicals or proteins, in the case of latex, over a long period of time. With chronic health issues, the term long is relative. Some health issues show up within months, whereas chemicals causing cancer may not show up for decades. These are the health hazards that are not included in the NFPA rating system yet are the hazards of chemicals widely used in healthcare. The identification and ranking of chronic health issues are causing the dilemma of rating systems currently in use.

Another common hazard rating system currently in use was developed by the American Coatings Association. The third revision of the Hazardous Materials Identification System (HMIS) was released in 2001 to aid employers in the implementation of an effective OSHA hazard communication program. This version helps define the health, flammability, and physical hazards of different chemicals and shows how to communicate those hazards with a label that incorporates color-coded fields, along with a recommendation for personal protective equipment (PPE).

HMIS is intended to be used by employers and workers on a daily basis and provides information on acute and chronic health hazards, flammability, physical hazard, and PPE. The emphasis of HMIS is on personal protective equipment and hazard communication about everyday workplace hazards and how they can minimize exposure.

HMIS labels always appear as a rectangular label containing a grouping of four horizontal colored bars with a blue (1) “health” bar on top, a red (2) “flammability” bar below that, followed by an orange (3) “physical hazard” bar, and a white (4) “personal protection” bar (see Figure 1.2). There may be additional space on the label for other information, such as the product name,
supplemental warnings, manufacturer information, or additional HMIS information.

**Figure 1.2** HMIS rating label.

![HMIS rating label](image)

It is important to note that the NFPA ratings for health hazards and the HMIS ratings for health hazards are not interchangeable.

Employees are alerted by the use of color codes corresponding to the hazards of a product, assigned numeric ratings indicating the degree of hazard (with “4” being the highest degree of hazard and “1” being the least hazardous), and alphabetical codes designating the appropriate PPE employees should wear while handling the material (A–LZ). (see Figure 1.3)
**Figure 1.3  HMIS PPE rating system.**

A PPE rating of “A” indicates safety glasses.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Safety glasses and gloves</td>
</tr>
<tr>
<td>C</td>
<td>Safety glasses, gloves, and an apron</td>
</tr>
<tr>
<td>D</td>
<td>Face shield, gloves, and an apron</td>
</tr>
<tr>
<td>E</td>
<td>Safety glasses, gloves, and a dust respirator</td>
</tr>
<tr>
<td>F</td>
<td>Safety glasses, gloves, apron, and a dust respirator</td>
</tr>
<tr>
<td>G</td>
<td>Safety glasses and a vapor respirator</td>
</tr>
<tr>
<td>H</td>
<td>Splash goggles, gloves, apron, and a vapor respirator</td>
</tr>
<tr>
<td>I</td>
<td>Safety glasses, gloves, and a dust/vapor respirator</td>
</tr>
<tr>
<td>J</td>
<td>Splash goggles, gloves, apron, and a dust/vapor respirator</td>
</tr>
<tr>
<td>K</td>
<td>Airline hood or mask, gloves, full suit, and boots</td>
</tr>
<tr>
<td>L–Z</td>
<td>Custom PPE specified by employer</td>
</tr>
</tbody>
</table>

The use of an asterisk (*) next to the HMIS numerical ranking designates the chemical is a carcinogen (cancer causing) or for materials known to have an adverse effect given chronic or long-term exposure. This information is of great benefit to workers, since this gives them an indication of how the materials may affect them over a long period of time.

**Globally Harmonized System**

In the 1980s, the United Nations (UN) began a global conversation about identifying a single international system for evaluating and identifying chemical hazards. OSHA represented the United States in this discussion. The UN initially published the guidelines in 2005. The third revision of the *Globally Harmonized*
System of Classification and Labelling of Chemicals (GHS), often called the Purple Book, is the basis for the final rule changes made by OSHA to the Hazard Communication Standard effective March 2012. The GHS revision enhances but does not replace the Hazard Communication Standard. It is meant to give workers the “right to understand” the hazards in their workplace. The purpose of the GHS is to ensure quality and consistency of labeling by using pictograms, signal words, and hazard and precautionary statements in an international economy. The GHS is meant to unify all the different and sometimes conflicting systems of labeling and identifying hazardous chemicals throughout the world, thereby reducing trade barriers. The advantages of the GHS as stated by OSHA include:

❖ Reduced confusion about hazard classifications
❖ Increased understanding about safety precautions to take, approved use, proper storage, and disposal of chemicals and mixtures
❖ Increased downstream risk management by increasing understanding of the risks of hazardous chemicals
❖ Facilitated training with uniform safety data sheets and well-defined hazard classes
❖ Enhanced worker understanding especially for low-literacy workers and those workers where English is a second language
❖ Improved worker safety
❖ Enhanced international trade

The GHS update adds appendices to the Hazard Communication Standard that define better health and physical hazards, requires that mixtures of chemicals be assessed for hazards, and requires
that a pictogram for each hazard class be placed on the label of each chemical container received or each secondary container used in the workplace.

**Hazard Communication Elements Still in Effect**

There are key elements of the original Hazard Communication Standard that are still in effect. This includes the need for a written hazard communication plan that is reviewed annually. Other items that remain include:

- An accurate, frequently updated list of chemicals in the facility
- A safety data sheet (formerly a material safety data sheet [MSDS]) for each hazardous chemical that is readily accessible at all times
- Training for all workers before they are potentially exposed to hazardous chemicals and when new chemical hazards are introduced
- Identification and training on required PPE
- Knowledge of signs and symptoms of exposure to hazardous chemicals in area
- Proper segregation and storage of all chemicals
- Spill kits/emergency equipment for each class of hazardous chemical
- Emergency response and first aid procedures
- Medical evaluation protocols in cases of overexposure
- Archiving MSDS no longer in use for 30 years
It is important to note that the information presented in this handbook represents the GHS revisions of the Hazard Communication Standard as outlined at the time of publication. Because interpretations and enforcement policy may change over time, the reader may need to consult with current OSHA interpretations and decisions by the Occupational Safety and Health Review Commission for updates and additional guidance. Please note that states with OSHA-approved state plans may have additional requirements. For additional information, consult www.osha.gov related to state-approved OSHA programs.

Reference Note:

OSHA has revamped its Hazard Communication standard by adopting the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. The changes are intended to improve safety and save lives, but will require a well-planned process on the part of healthcare organizations to be effective.

The Hazard Communication standard is one of the most cited and penalized OSHA standards, the second highest among offices and clinics of doctors of medicine. Author Marge McFarlane, PhD, MT (ASCP), CHSP, CHFM, HEM, MEP, CHEP, will walk you through the revisions to help you better prepare for these important, life-saving changes.