

\*This date coincides with the EU implementation date for classification of mixtures

During the phase-in period, employers would be required to be in compliance with either the existing HCS or the revised HCS, or both. OSHA recognizes that hazard communication programs will go through a period of time where labels and SDSs under both standards will be present in the workplace. This will be considered acceptable, and employers are not required to maintain two sets of labels and SDSs for compliance purposes.

#### **Q. Why must training be conducted prior to the compliance effective date?**

A. OSHA is requiring that employees are trained on the new label elements (i.e., pictograms, hazard statements, precautionary statements, and signal words) and SDS format by December 1, 2013, while full compliance with the final rule will begin in 2015. OSHA believes that American workplaces will soon begin to receive labels and SDSs that are consistent with the GHS, since many American and foreign chemical manufacturers have already begun to produce HazCom 2012/GHS-compliant labels and SDSs. It is important to ensure that when employees begin to see the new labels and SDSs in their workplaces, they will be familiar with them, understand how to use them, and access the information effectively. For more information, <http://www.osha.gov/dsg/hazcom/effectivedates.html>.

#### **Q. What are the major changes to the Hazard Communication Standard?**

A. The three major areas of change are in hazard classification, labels, and safety data sheets.

- **Hazard classification:** The definitions of hazard have been changed to provide specific criteria for classification of health and physical hazards, as well as classification of mixtures. These specific criteria will help to ensure that evaluations of hazardous effects are consistent across manufacturers, and that labels and safety data sheets are more accurate as a result.
- **Labels:** Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.
- **Safety Data Sheets:** Will now have a specified 16-section format.

The GHS does not include harmonized training provisions, but recognizes that training is essential to an effective hazard communication approach. The revised Hazard Communication Standard (HCS) requires that workers be re-trained within two years of the publication of the final rule to facilitate recognition and understanding of the new labels and safety data sheets.

For a side-by-side comparison of the current HCS and the final revised HCS please see OSHA's hazard communication safety and health topics webpage at: <http://www.osha.gov/dsg/hazcom/index.html>

#### **Q. What Hazard Communication Standard provisions are unchanged in the revised HCS?**

A. The revised Hazard Communication Standard (HCS) is a modification to the existing standard. The parts of the standard that did not relate to the GHS (such as the basic framework, scope, and exemptions) remained largely unchanged. There have been some modifications to terminology in order to align the revised HCS with language used in the GHS. For example, the term "hazard determination" has been changed to "hazard classification" and "material safety data sheet" was changed to "safety data sheet." OSHA stakeholders commented on this approach and found it to be appropriate.

#### **Q. How will chemical hazard evaluation change under the revised Hazard Communication Standard?**

A. Under both the current Hazard Communication Standard (HCS) and the revised HCS, an evaluation of chemical hazards must be performed considering the available scientific evidence concerning such hazards. Under the current HCS, the hazard determination provisions have definitions of hazard and the evaluator determines whether or not the data on a chemical meet those definitions. It is a performance-oriented approach that provides parameters for the evaluation, but not specific, detailed criteria. The hazard classification approach in the revised HCS is quite different. The revised HCS has specific criteria for each health and physical hazard, along with detailed instructions for hazard evaluation and determinations as to whether mixtures or substances are covered. It also establishes both hazard classes and hazard categories—for most of the effects; the classes are divided into categories that reflect the relative severity of the effect. The current HCS does not include categories for most of the health hazards covered, so this new approach provides additional information that can be related to the appropriate response to address the hazard. OSHA has included the general provisions for hazard classification in paragraph (d) of the revised rule, and added extensive appendixes (Appendixes A and B) that address the criteria for each health or physical effect.

### **Q. How will labels change under the revised Hazard Communication Standard?**

A. Under the current Hazard Communication Standard (HCS), the label preparer must provide the identity of the chemical, and the appropriate hazard warnings. This may be done in a variety of ways, and the method to convey the information is left to the preparer. Under the revised HCS, once the hazard classification is completed, the standard specifies what information is to be provided for each hazard class and category. Labels will require the following elements:

- **Pictogram:** 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.
- **Signal words:** 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.
- **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.

### **Q. What pictograms are required in the revised Hazard Communication Standard? What hazard does each identify?**

A. There are nine pictograms under the GHS to convey the health, physical and environmental hazards. The final Hazard Communication Standard (HCS) requires eight of these pictograms, the exception being the environmental pictogram, as environmental hazards are not within OSHA's jurisdiction. The hazard pictograms and their corresponding hazards are shown below.

## HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
<ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non Mandatory)</li> </ul>
Gas Cylinder	Corrosion	Exploding Bomb
<ul style="list-style-type: none"> <li>• Gases under Pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Skin Corrosion/ burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
Flame over Circle	Environment (Non Mandatory)	Skull and Crossbones
<ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

### Q. Can I use a black border on pictograms for domestic shipment?

A. Under the revised Hazard Communication Standard (HCS), pictograms must have red borders. OSHA believes that the use of the red frame will increase recognition and comprehensibility. Therefore, the red frame is required regardless of whether the shipment is domestic or international.

### Q. Will OSHA allow blank red borders?

A. The revised Hazard Communication Standard (HCS) requires that all red borders printed on the label have a symbol printed inside it. If OSHA were to allow blank red borders, workers may be confused about what they mean and concerned that some information is missing. OSHA has determined that prohibiting the use of blank red borders on labels is necessary to provide the maximum recognition and impact of warning labels and to ensure that users do not get desensitized to the warnings placed on labels.

### Q. When must label information be updated?

A. In the revised Hazard Communication Standard (HCS), OSHA is lifting the stay on enforcement regarding the provision to update labels when new information on hazards becomes available. Chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical shall revise the labels for the chemical within **six months** of becoming aware of the new information, and shall ensure that labels on containers of hazardous chemicals shipped after that time contain the new information. If the chemical is not currently

produced or imported, the chemical manufacturer, importer, distributor, or employer shall add the information to the label before the chemical is shipped or introduced into the workplace again.

**Q. How will workplace labeling provisions be changing under the revised Hazard Communication Standard?**

A. The current standard provides employers with flexibility regarding the type of system to be used in their workplaces and OSHA has retained that flexibility in the revised Hazard Communication Standard (HCS). Employers may choose to label workplace containers either with the same label that would be on shipped containers for the chemical under the revised rule, or with label alternatives that meet the requirements for the standard. Alternative labeling systems such as the National Fire Protection Association (NFPA) 704 Hazard Rating and the Hazardous Material Information System (HMIS) are permitted for workplace containers. However, the information supplied on these labels must be consistent with the revised HCS, e.g., no conflicting hazard warnings or pictograms.

**Q. How is the Safety Data Sheet (SDS) changing under the revised Hazard Communication Standard?**

A. The information required on the safety data sheet (SDS) will remain essentially the same as that in the current standard (HazCom 1994). HazCom 1994 indicates what information has to be included on an SDS, but does not specify a format for presentation or order of information. The revised Hazard Communication Standard (HazCom 2012) requires that the information on the SDS be presented using specific headings in a specified sequence.

Paragraph (g) of the final rule provides the headings of information to be included on the SDS and the order in which they are to be provided. In addition, Appendix D provides the information to be included under each heading. The SDS format is the same as the ANSI standard format which is widely used in the U.S. and is already familiar to many employees.

The format of the 16-section SDS should include the following sections:

- Section 1. Identification
- Section 2. Hazard(s) identification
- Section 3. Composition/information on ingredients
- Section 4. First-Aid measures
- Section 5. Fire-fighting measures
- Section 6. Accidental release measures
- Section 7. Handling and storage
- Section 8. Exposure controls/personal protection
- Section 9. Physical and chemical properties
- Section 10. Stability and reactivity
- Section 11. Toxicological information
- Section 12. Ecological information
- Section 13. Disposal considerations
- Section 14. Transport information
- Section 15. Regulatory information
- Section 16. Other information, including date of preparation or last revision

The SDS must also contain Sections 12-15, to be consistent with the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Although the headings for Sections 12-15 are mandatory, OSHA will not enforce the content of these four sections because these sections are within other agencies' jurisdictions.

**Q. Will TLVs be required on the Safety Data Sheet (SDS)?**

A. OSHA is retaining the requirement to include the American Conference of Government Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) on the safety data sheet (SDS) in the revised Standard. OSHA finds that requiring TLVs on the SDS will provide employers and employees with useful information to help them assess the hazards presented by their workplaces. In addition to TLVs, OSHA permissible exposure limits (PELs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet are also required.

**Q. May the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) lists be used to make carcinogen classifications?**

A. In the revised Hazard Communication Standard (HCS), OSHA has provided classifiers with the option of relying on the classification listings of IARC and NTP to make classification decisions regarding carcinogenicity, rather than applying the criteria themselves. OSHA believes that this will make classification easier for classifiers, as well as lead to greater consistency. In addition, OSHA has provided in non-mandatory Appendix F of the revised rule, guidance on hazard classification for carcinogenicity. Part A of Appendix F includes background guidance provided by GHS based on the Preamble of the IARC "Monographs on the Evaluation of Carcinogenic Risks to Humans" (2006). Part B provides IARC classification information. Part C provides background guidance from the National NTP "Report on Carcinogens" (RoC), and Part D is a table that compares GHS carcinogen hazard categories to carcinogen classifications under IARC and NTP, allowing classifiers to be able to use information from IARC and NTP RoC carcinogen classifications to complete their classifications under the GHS, and thus the HCS.

**Q. Will the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) classifications be required on the Safety Data Sheet (SDS)?**

A. OSHA has retained the requirement to include IARC and NTP classifications on safety data sheets (SDSs). Therefore, if a chemical is listed as a carcinogen by either IARC or NTP, it must be noted on the SDS. Additionally, if OSHA finds a chemical to be a carcinogen, it must be noted on the SDS as well.

**Q. How has OSHA addressed hazards covered under the current Hazard Communication Standard that have not been addressed by the GHS?**

A. In the Notice of Proposed Rulemaking (NPRM), OSHA proposed to include hazards currently covered under the Hazard Communication Standard (HCS) that have yet to be addressed by the GHS (OSHA provided several examples: simple asphyxiants, and combustible dust) in a separate category called "Unclassified Hazards". In response to comments from the regulated community, OSHA has renamed the category to "Hazards Not Otherwise Classified (HNOC)" to minimize confusion. In the final HCS, HNOC hazards will not be required to be disclosed on the label but will be required to be disclosed in section 2 of the Safety Data Sheet (SDS). This reflects how GHS recommends these hazards should be disclosed. Chemical manufacturers and importers are expected to assess these hazards when they are conducting their hazard evaluation of physical and health hazards. A new or separate evaluation is not required. Also in the final standard, in response to comments, OSHA has removed pyrophoric gases, simple asphyxiants, and combustible dust from the HNOC hazard category and has addressed these chemicals individually (see question below for more information on each hazard).

**Q. How has OSHA addressed pyrophoric gases, simple asphyxiants, and combustible dust?**

A. In the revised Hazard Communication Standard (HCS), OSHA has added pyrophoric gases, simple asphyxiants and combustible dust to the definition of "hazardous chemical". OSHA has also added

definitions to the revised HCS for pyrophoric gases and simple asphyxiants, and provided guidance on how to define combustible dust for the purposes of complying with the HCS.

- **Pyrophoric gases:**  
OSHA has retained the definition for pyrophoric gases from the current HCS. Pyrophoric gases must be addressed both on container labels and SDSs. OSHA has provided label elements for pyrophoric gases which include the signal word "danger" and the hazard statement "catches fire spontaneously if exposed to air".
- **Simple asphyxiants:**  
OSHA has revised the definition of simple asphyxiants that was proposed in the Notice of Proposed Rulemaking (NPRM) as a result of comments from the regulated community. In the final HCS, simple asphyxiants must be labeled where appropriate, and be addressed on SDSs. OSHA has provided label elements for simple asphyxiants which include the signal word "warning" and the hazard statement "may displace oxygen and cause rapid suffocation".
- **Combustible dust:**  
OSHA has **not** provided a definition for combustible dust to the final HCS given ongoing activities in the specific rulemaking, as well as in the United Nations Sub-Committee of Experts on the GHS (UN/SCEGHS). However, guidance is being provided through existing documents, including the Combustible Dust National Emphasis Program Directive CPL 03-00-008, which includes an operative definition, as well as provides information about current responsibilities in this area. In addition, there are a number of voluntary industry consensus standards (particularly those of the NFPA) that address combustible dust.

In the final HCS, combustible dust hazards must be addressed on labels and SDSs. Label elements are provided for combustible dust in the final HCS and include the signal word "warning" and the hazard statement "May form combustible dust concentrations in the air".

For chemicals in a solid form that do not present a combustible dust hazard, but may form combustible dusts while being processed in normal downstream uses, paragraph (f)(4) of the HCS allows the chemical manufacturer some flexibility in labeling requirements. The manufacturer or importer may transmit the label to the customer at the time of the initial shipment, but the label does not need to be included with subsequent shipments unless it changes. This provides the needed information to the downstream users on the potential hazards in the workplace, while acknowledging that the solid metal or other materials do not present the same hazards that are produced when these materials are processed under normal conditions of use.

**Q: How many businesses and workers would be affected by the revised Hazard Communication Standard?**

A: OSHA estimates that over 5 million workplaces in the United States would be affected by the revised Hazard Communication Standard (HCS). These are all those workplaces where employees—a total of approximately 43 million of them—could be exposed to hazardous chemicals. Included among these 5 million workplaces are an estimated 90,000 establishments that create hazardous chemicals; these chemical producers employ almost 3 million workers.

**Q: What are the estimated overall costs for industry to comply with the revised Hazard Communication Standard?**

A: The revised Hazard Communications Standard's (HCS) total cost, an estimated \$201 million a year on an annualized basis for the entire United States, is the sum of four major cost elements. (1) OSHA estimates that the cost of classifying chemical hazards in accordance with the GHS criteria and revising safety data sheets and labels to meet new format and content requirements would be \$22.5 million a year on an annualized basis. (2) OSHA estimates that training for employees to become familiar with new warning symbols and the revised safety data sheet format under GHS would cost \$95.4 million a year on an annualized basis. (3) OSHA estimated annualized costs of \$59 million a year for management to become familiar with the new GHS system and to engage in other management-related activities as may be necessary for industry's adoption of GHS. (4) OSHA estimated annualized costs of \$24.1 million for printing packaging and labels for hazardous chemicals in color.

**Q: What are the estimated benefits attributable to the revised Hazard Communication Standard?**

A: OSHA expects that the modifications to the Hazard Communication Standard (HCS) will result in increased safety and health for the affected employees and reduce the numbers of accidents, fatalities, injuries, and illnesses associated with exposures to hazardous chemicals. The GHS revisions to the HCS standard for labeling and safety data sheets would enable employees exposed to workplace chemicals to more quickly obtain and to more easily understand information about the hazards associated with those chemicals. In addition, the revisions to HCS are expected to improve the use of appropriate exposure controls and work practices that can reduce the safety and health risks associated with exposure to hazardous chemicals.

OSHA estimates that the revised HCS will result in the prevention of 43 fatalities and 585 injuries and illnesses (318 non-lost-workday injuries and illnesses, 203 lost-workday injuries and illnesses, and 64 chronic illnesses) annually. The monetized value of this reduction in occupational risks is an estimated \$250 million a year on an annualized basis.

OSHA estimates that the revised HCS will result in savings of \$475.2 million from productivity improvements for health and safety managers and logistics personnel, \$32.2 million during periodic updating of SDSs and labels, and \$285.3 million from simplified hazard communication training.

OSHA anticipates that, in addition to safety and health benefits, the revised HCS will result in four types of productivity benefits: (1) for chemical manufacturers, because they will need to produce fewer SDSs in future years; (2) for employers, in providing training to new employees as required by the existing OSHA HCS through the improved consistency of the labels and SDSs. (3) for firms engaging in, or considering engaging in, international trade.

**Q. I understand that the United Nations revises the GHS every two years. How will OSHA manage and communicate changes to the Hazard Communication Standard?**

A. It is expected that the GHS will be a living document and is expected to remain up-to-date and relevant; therefore further changes may be adopted on a two year cycle. Presently most of the recent updates have been clarification of text. However, OSHA anticipates that future updates of the Hazard Communication Standard (HCS) may be necessary and can be done through various rulemaking options, including:

- **Technical updates** for minor terminology changes,
- **Direct Final Rules** for text clarification, and
- **Notice and Comment rulemaking** for more substantive or controversial updates such as additional criteria or changes in health or safety hazard classes or categories

GHS stands for the Globally Harmonized System of Classification and Labelling of Chemicals. GHS was developed by the United Nations as a way to bring into agreement the chemical regulations and standards of different countries. In short, it is an international attempt to get all countries on the same page.

Born out of the United Nations 'Earth Summit' of 1992, over 65 countries have already adopted, or are in the process of adopting, GHS, including the United States and Canada. GHS is primarily concerned with the classification of chemicals and the communication of hazards related to those chemicals to users of the products downstream via warning labels and safety data sheets.

GHS is not a law unto itself; rather it is a system with components countries can adopt into their own systems. In other words, HCS remains the law in the U.S., and WHMIS will continue to be the law in Canada; however, alignment with GHS changes both HCS and WHMIS in ways that have significant consequences for chemical manufacturers and employers in both countries.

GHS adoption affects everyone in the chemical lifecycle, with special responsibilities for chemical manufacturers and employers that handle, use and store hazardous materials. Chemical manufacturers must reclassify their chemicals using GHS's standardized classification criteria as well as produce GHS compliant labels and safety data sheets (SDSs). Employers must train employees on GHS (how to understand new labels and data sheets), manage the influx of new SDSs which will include replacing their entire MSDS library, and be ready to produce GHS compliant workplace labels.

Existing fines and penalties for non-compliance with HCS and WHMIS extend to GHS alignment with these same standards. In the United States, that means that HCS violations, which already rank #3 on OSHA's Top Ten Violations List, could see even more action. And WHMIS penalties of up to \$1 million in fines and two years in prison will remain a serious consideration for anyone with obligations under Canada's hazard communication standard.

Unfortunately, complying with GHS in both the United States and Canada is not a straightforward affair. For instance, in the U.S., OSHA is allowing two years for employee training on GHS, and three years for full compliance, during which the agency has signaled it will accept adherence to either the old HCS or the revised HCS. Yet, if circumstances arise from GHS adoption in a particular workplace that affects employee safety, (e.g. trouble reading GHS labels or understanding pictograms) the employer would be expected to deal with it in the moment, regardless of how much time they had left to train and be in full compliance of GHS according to the standard.

Ultimately, employers have a responsibility to keep their employees safe. For that reason, and to ensure full compliance, MSDSONline recommends companies stay in front of GHS adoption by aligning their policies and health and safety management with GHS principles at the earliest opportunity.

Revision of the Hazard Communication Standard to align with GHS affects over 40 million workers in 5 million workplaces. Interestingly, the impetus for developing and adopting GHS was written into the preamble of the original HCS in 1983. It recommended seeking the creation of a global approach to

hazard communication to reduce risks from confusing differences in international standards as well as ease the cost and hassle of international trade.

Revisions to OSHA's HCS to align with GHS result in two major changes. First, unlike HCS, which stops at simply classifying hazards, GHS hazard classes are subdivided into "hazard categories" so that chemical manufacturers must identify both the hazardous effects of their chemicals as well as their degrees of severity. The second key area of change under GHS is to labels and safety data sheets.

### **GHS safety labels have six standardized elements:**

- Product Identifier – Must match product identifier on safety data sheet
- Manufacturer Contact Information – Including name, phone number, and address
- Hazard Pictograms – New label elements that may require color printers
- Signal Word – Either DANGER or WARNING depending upon hazard severity
- Hazard Statements – Standardized sentences that describes the level of the hazards
- Precautionary Statements – Steps employees can take to protect themselves

### **MSDSs Get a New Look**

Under GHS alignment, safety data sheets remain the backbone of HCS compliance. They do, however, get a name and formatting change. GHS drops the M from MSDS and calls them SDSs. More importantly, SDSs have a standardized 16 section format with a required ordering of sections. It is essentially the ANSI Standard for MSDSs with a few adjustments.

For workplace labeling, OSHA is maintaining the approach used in HazCom

1994 that allows employers to use workplace-specific labeling systems as long as they provide the required information. That is, the employer shall ensure that each container of hazardous chemicals in the workplace is label either as shipped, the shipping label, or with the use of the product identifier in words, pictures, symbols, or any combination of the above, where at least the general information regarding the hazards of the chemicals, and which in conjunction with the other information, immediately available to employees under the HazCom Communication Program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

However, such workplace labeling systems may need to be updated to make sure that

the information is consistent with the new classification. There are several of these systems that are currently being used out in the workplace such as NFPA and HMIS. These rating systems which take the complicated classification criteria and boil it down to one or two numbers can still be used. OSHA does not see necessarily where these systems will conflict with the new HazCom requirements.

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OSHA, on March 26 in the Federal Register, published the final rule to integrate the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS) into OSHA's hazard communication (HazCom) standard. The amended HazCom standard requires employers to classify chemicals according to their health and physical hazards, and to adopt new, consistent formats for labels and safety data sheets (SDS)<sup>1</sup> for all chemicals manufactured or imported in the United States.

When introducing the final rule, Assistant Secretary of Labor for OSHA Administrator Dr. David Michaels said, "This is a very exciting day for OSHA. We've been working on this standard for quite some time. Over the years, it became clear that the old HazCom standard was inadequate because of inconsistency and inaccuracy, which affected workers who had trouble finding the information they needed."

The old HazCom standard was lauded for years as employees' "right to know" about the hazards they faced in the workplace. Since it was first issued in 1983, the HazCom standard required employers to provide information about the various hazards, treatment and mitigation measures, and proper handling and storage of chemicals in the workplace. Chemical manufacturers and importers were required to:

- Evaluate the hazards of chemicals;
- Provide information about the hazards through labels and material safety data sheets (MSDS);
- Implement a written hazard communication program;
- Maintain a list of all hazardous chemicals in the workplace; and
- Train all employees in the program.

As a performance-based standard, the previous HazCom standard provided only guidance for defining hazards and for performing hazard determinations.

The United Nations' GHS provides a single set of harmonized criteria for classifying chemicals according to various health hazards (e.g., irritation, sensitization and carcinogenicity) and physical hazards (e.g., fire, explosion and corrosion), and specifies model formats and substantive requirements for labels and SDS. GHS is not a mandatory regulation, but it is implemented globally throughout the EU, China, Australia and elsewhere. Labor Secretary Hilda Solis characterized GHS as an "unprecedented international effort to establish a common framework" for classifying and labeling chemicals, and said "this information will reduce confusion in the workplace, especially for low-wage and low-literacy workers."

The new harmonized HazCom standard from OSHA amends the existing HazCom standard by integrating GHS. The "harmonized" standard ensures that employees will continue to have access to labels and SDS, but now that information should be easier to find and more understandable because of standardized formats and information, including the use of common signal words, pictograms, hazard statements and precautionary statements. According to Michaels, "OSHA's 1983 hazard communication standard gave workers the right to know ... this update will give them the right to understand." 2

OSHA estimates the new HazCom standard will impact more than 5 million workplaces and 43 million employees. OSHA estimates the total cost for complying with the new standard for all employers and industries to be \$201 million per year on an annualized basis. This total cost includes, among other activities, classifying chemical hazards, revising SDS, creating or modifying labels to meet new requirements, training employees in the new warning symbols and revised SDS, familiarizing management with the new GHS system and printing new packaging and labeling materials for hazardous chemicals.

## 10 Things Employers Need to Know

1) Hazard classification: The new standard has specific criteria for classifying health and physical hazards into a (i) hazard class and (ii) hazard category. The hazard class indicates the nature of hazard (e.g. flammable liquids, carcinogen and explosives) and the hazard category is the degree of severity within each hazard class (e.g. flammable liquid includes four hazard categories).<sup>3</sup> The hazard classification is based on the weight of evidence using expert judgment. However, with respect to some hazard categories, all studies performed according to good scientific principles that result in a finding that the chemical falls into a hazardous class must be disclosed on SDS, even if the weight of the evidence suggests that it does not. For example, if one study reports that a chemical is carcinogenic, but 10 other studies report the opposite, that one study still must be disclosed on the SDS. Employers may explain away that study, but the finding must at least be included on the SDS. According to OSHA, the specific criteria will help to ensure consistent evaluations of hazardous effects, and in turn provide more accurate labels and SDS.

2) Mixtures: Unlike the old HazCom standard, which defined across-the-board percentage cut-offs for mixtures, the new standard employs a tiered approach to classifying mixtures. Evaluating health hazards of mixtures is based on data for the mixture as a whole when such data is available. If data is not available, however, manufacturers and importers may extrapolate from data on ingredients and similar mixtures to classify the mixture. Additionally, “[w]hen chemical manufacturers and importers are classifying mixtures, they [generally may] rely on the information provided on current safety data sheets of the individual ingredients.”

3) New label requirements: Where the old HazCom standard gave manufacturers and importers discretion to convey any language on labels they deemed appropriate, the new standard provides specific information required on all labels. The new label requirements directly are linked to the hazard classification. For each hazard class and category, chemical manufacturers and importers are required to provide harmonized signal words, pictograms with red borders,<sup>5</sup> and hazard statements. Additionally, precautionary statements are required on the labels to describe recommended measures to protect against hazardous exposures. Product identifiers and supplier information are also required.

4) Safety data sheets: The new HazCom Standard uses a standardized, 16-section format for all SDS to provide a consistent sequence for organizing the information.

5) Non-mandatory threshold limit values in SDS: After several exchanges with industry organizations, internal deliberations and floating different draft proposals, OSHA ultimately decided to require employers to include OSHA's mandatory permissible exposure limits (PELs) and the non-mandatory threshold limit values (TLVs) developed by the American Conference of Governmental Industrial Hygienists on the SDS. OSHA believes that TLVs on SDS furthers employees' "right to understand." In addition to the TLVs and OSHA's PELs, any other exposure limit used or recommended by the chemical manufacturer, importer or employer preparing the SDSs now are required on the SDS.

6) Information and Training: To facilitate recognition and understanding, employers are required to train employees on the new label elements (e.g. signal words, pictograms and hazard statements) and SDS format by Dec. 1, 2013.

7) Effective dates: In addition to training employees by Dec. 1, 2013, compliance with modified provisions of the final rule is required by June 1, 2015. Distributors, however, may ship products labeled under the old HazCom standard until Dec. 1, 2015. Finally, by June 1, 2016, employers must update workplace labeling and written hazard communication programs as necessary, and provide additional worker training for newly identified physical and health hazards. During the transition period, all chemical manufacturers, importers, distributors and employers may comply with the old HazCom standard, the amended HazCom standard or both. The chart above summarizes the rolling effective dates of the new standard. 8

8) Hazards not otherwise classified: Hazards covered under the old HazCom standard but not addressed by GHS are covered under a separate category titled "Hazards Not Otherwise Classified" (HNOC). In the notice of proposed rulemaking, OSHA originally titled this category "Unclassified Hazards." Due to industry comments, however, OSHA renamed the category to HNOC. "Chemical manufacturers and importers are expected to assess [HNOC] hazards when they are conducting their hazard evaluation of physical and health hazards," but are not required to conduct new or separate evaluations.<sup>9</sup> Hazards classified as HNOC need only be disclosed on the SDS under Section 2: Hazard(s) Identification, and do not need to be disclosed on labels. Notably, pyrophoric gases, simple asphyxiants and combustible dust are not classified under the HNOC category in the new standard, as OSHA originally proposed in the NPRM. Rather, these chemicals are addressed individually in the new standard.

9) The new HazCom standard does not preempt state tort law: Following the Obama administration's broad policy against federal preemption, the new HazCom standard does not preempt state tort laws. Accordingly, the new standard will not limit personal injury lawsuits at the state level regarding chemical exposures, inadequate warnings on labels and/or failure to warn. Organized labor hailed OSHA's decision not to preempt state tort law as a victory.

10) Combustible dust: Against much industry protest, the final rule added combustible dust to the definition of hazardous chemicals. This means that combustible dust hazards now must be addressed on labels and SDS. The new standard outlines the label elements required for combustible dust, including the signal word "warning" and the hazard statement, "May form combustible dust concentrations in the air." Notably, OSHA failed to provide a definition for combustible dust in the new standard, creating uncertainty for employers. OSHA claims that it did not give a definition due to the ongoing combustible dust rulemaking and work of the United Nations' Sub-Committee of Experts on the GHS. Instead, OSHA pointed to existing documents, including OSHA's Hazard Communication Guidance for Combustible Dusts, OSHA (3371-08 2009) and its Combustible Dust National Emphasis Program Directive (CPL 03-00-008), as guidance on the nature and definition of combustible dust. Although the new HazCom standard expressly states that combustible dust is covered, OSHA's failure to define combustible dust likely will create substantial confusion.

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<http://www.osha.gov/Publications/osh3111.pdf>

It is through effective information and training, however, that workers will learn to read and understand such information, determine how to acquire and use it in their own workplace, and understand the risks of exposure to the chemical in their workplaces as well as the ways to protect themselves. A properly conducted training program will ensure comprehension and understanding. It is not sufficient to either just read material to the workers or simply hand them material to read. You want to create a climate where workers feel free to ask questions. This will help you to ensure that the information is understood. You must always remember that the underlying purpose of the HCS is to reduce the incidence of chemical source illnesses and injuries. This will be accomplished by modifying behavior

through the provision of hazard information and information about protective measures. If your program works, you and your workers will better understand the chemical hazards within the workplace. The procedures you establish, regarding, for example, purchasing, storage, and handling of these chemicals will improve, and thereby reduce the risks posed to employees exposed to the chemical hazards involved. Furthermore, your workers' comprehension also will be increased, and proper work practices will be followed in your workplace.

The written program should provide enough details about the employer's plans in this area to assess whether or not a good faith effort is being made to train employees. OSHA does not expect that every workers will be able to recite all the information about each chemical in the workplace. In general, the most important aspects of training under the HCS are to ensure that employees are aware that they are exposed to hazardous chemicals, that they know how to read and use labels and material safety data sheets, and that, as a consequence of learning this information, they are following the appropriate protective measures established by the employer. OSHA compliance officers will be talking to employees to determine if they have received training, if they know they are exposed to hazardous chemicals, and if they know where to obtain substance specific information on labels and MSDSs