

HazCom 2012 – Most Frequently Asked Questions

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Introduction

On March 25, 2012, the Occupational Safety and Health Administration (OSHA) published a final rule aligning its Hazard Communication Standard, also known as HCS, HazCom and 1910.1200, with the United Nations' 3rd Revision of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), referred to as the Purple Book (OSHA Final Rule 2012). HazCom covers more than 43 million workers in more than 5 million workplaces and more than 880,000 hazardous chemicals, affecting everyone in the hazardous chemical lifecycle (OSHA Fact Sheet HCS 2012).

OSHA is referring to the revised rule as HazCom 2012 as a way to distinguish it from the iteration it's replacing – HazCom 1994. The final rule went into effect on May 25, 2012, and is followed by a series of four phased-in compliance deadlines. As these deadlines approach, more and more questions begin to surface for EH&S professionals preparing to comply.

MSDSonline has been educating people about HazCom and OSHA's alignment with GHS for several years and has uncovered a list of the most frequently asked question even the smartest well-versed EH&S professionals are asking. This paper takes readers through the 10 most frequently asked questions:

1. What Are the Biggest Changes to HazCom as Part of GHS Alignment?
2. What is My Deadline to Comply?
3. What are the New Label Requirements?
4. How are Material Safety Data Sheets Changing?
5. What are My Employee Training Requirements?
6. What Do I Need to Know about SDS Authoring?
7. What Should I Do with Older Versions of MSDSs?
8. What is Canada's Plan for GHS Adoption?
9. How Does GHS Alignment Change Electronic MSDS/SDS Management?

10. Are Any Other Standards Affected by HazCom Alignment with GHS?

GHS Changes to HCS

Question 1: What Are the Biggest Changes to HazCom as Part of GHS Alignment?

Let us start by pointing out that while GHS adoption is new to the HazCom standard. The idea to harmonize the standard at a global level was actually an objective OSHA set out to pursue decades ago when it first issued HCS in 1983. It referenced this commitment in the preamble of the rule (OSHA 2004). Also, some might not realize that OSHA played a significant role in the development of GHS. Its Hazard Communication Standard was part of the four major systems referenced in the development of GHS, and the agency served as chair for the Coordinating Group responsible for managing the work involved in integrating all the international systems being evaluated to develop what is now the United Nations' GHS (OSHA HCS 2012).

The Globally Harmonized System is in essence a compilation of hazard communication best practices from around the world. GHS in itself is not a regulation; it is not governed by an international regulatory authority. Adopting countries and agencies are still responsible for governing and enforcing their respective hazardous chemical programs.

In order for the system to have its desired effect, the United Nations allows adopting countries and agencies to choose the elements from the system that work best for their particular needs; this is referred to as the *Building Block Approach* (OSHA Final Rule 2012). When OSHA adopted GHS, for example, it didn't perform a total rewrite of its regulation or do away with any existing protections. The framework of its HazCom standard, including the five main components of a compliant employer HazCom program — 1) Written Plan/Program 2) Chemical Inventory 3) Labels and Warnings 4) Training and 5) MSDS documents — remain intact. OSHA simply made updates to better align certain areas of the regulation with GHS, and provisions not affected by GHS remain unchanged.

To simplify things, OSHA placed the bulk of the technical changes into the appendices of the rule as opposed to within the regulatory text (OSHA Proposed Rule 2009). These appendices are most helpful to chemical producers who need to reference them for guidance on reclassifying chemicals and preparing updated labels and SDSs. However, employers may also find appendices C and D helpful for better understanding the newly formatted SDSs and labels that are or will be entering their work environment as a result of GHS alignment.

Below is the list of the HazCom 2012 appendices (OSHA HCS 2012):

- Appendix A: Health Hazard Criteria
- Appendix B: Physical Hazard Criteria
- Appendix C: Allocation of Label Elements
- Appendix D: Safety Data Sheets
- Appendix E: Definition of Trade Secret
- Appendix F: Guidance for Hazard Classification Regarding Carcinogenicity (Non-Mandatory)

Two Most Prevalent Changes

At a high level, the two biggest changes to HazCom as a result of GHS alignment are to hazard classification and hazard communication. The way hazards are classified has changed under HazCom 2012. There are new definitions and processes pertaining to hazard classification. OSHA actually deleted and replaced the term *hazard determination* with the new term *hazard classification*. According to 1910.1200(c) of the final rule, “*Classification* means to identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the *degree of hazard*, where appropriate, by comparing the data with the criteria for health and physical hazards” (OSHA HCS 2012).

A new idea presented in the latter half of that definition is determining the degree of hazard associated with a chemical; this is fundamental to GHS and a concept that exists throughout the system. Using carcinogenicity as an example, take a look at the difference between how the health hazard was treated under HazCom 1994 compared to how it’s treated under HazCom 2012. In HCS 1994, carcinogenicity had just one classification. If a chemical met certain criteria, it was deemed a carcinogen (OSHA 1994). Under GHS-aligned HazCom 2012, there are now tiers of severity that define and help communicate the extent of a chemical’s carcinogenicity. A chemical can be classified as a Category 1 or 2 carcinogen, with Category 1 being for chemicals that are known or presumed carcinogens and Category 2 being for suspected carcinogens. Within the first category there are also two subcategories, 1A for known and 1B for presumed carcinogens (OSHA App-A 2012).

Notice how GHS uses numbers to indicate severity — the lower the number the more severe the hazard. This numbering scheme is opposite of that used by HMIS (Hazardous Material Information System) and NFPA (National Fire Protection Association (OSHA Proposed 2009). OSHA received pushback on this during the pre-rule stage, but in the end, decided to proceed with using the GHS numbering scheme. It felt there would be little confusion in doing so, since the numbers used in GHS help determine which communication elements are used for conveying the hazards associated with a chemical, and the numbers appear on the SDS not the label, like they do with HMIS and NFPA. Furthermore, where the numbers do appear on the SDS, so does other contextual information, helping to further define what the numbers mean.

OSHA changed other definitions in its revised standard, including the definition of a hazardous chemical. In HazCom 1994, the definition of a hazardous chemical is any chemical that has a health or physical hazard (OSHA Redline 2012). Under GHS, what constitutes a physical or health hazard is very specific, and any hazards falling outside the prescribed criteria are not included. Because of this, several hazards OSHA had historically covered under its HazCom 1994 definition of a hazardous chemical would have been orphaned with GHS adoption had OSHA not made a move to correct this. To ensure worker protections were not lessened, OSHA changed the definition of hazardous chemical to mean any chemical that meets the adopted GHS criteria for health or physical hazard, or is one of the three following hazards: a combustible dust, simple asphyxiant, pyrophoric gas. Finally, OSHA also included another classification called Hazards Not Otherwise Classified (HNOC) to cover any hazardous chemical not already covered under the preceding umbrella. By doing this, OSHA retained the protections it had in place with HazCom 1994.

The following is the new definition from section 1910.1200(c) of the revised HazCom rule: “*Hazardous chemical* means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified” (OSHA Redline 2012).

The second most prevalent change to the rule is to the communication of hazards, meaning how chemical hazards are conveyed to end users through the rule’s primary means of communication — labels, safety data sheets and training. OSHA now has specific guidelines in place for what must appear on labels and safety data sheets, and employers must address this new information in their employee training.

The new guidelines remove some of the performance-based aspects of SDS and label compliance requirements. Manufacturers are no longer left to their own devices, the revised rule tells them exactly what to include, at a minimum, on SDSs and labels based on the classification of the chemical. Here’s an example of how the new prescriptive approach works at a high level: a chemical classified as a pyrophoric gas receives the signal word *Danger* and is assigned the hazard statement “Catches fire spontaneously if exposed to air,” and is assigned the *Flame* pictogram. These pieces of hazard communication information come directly from the rule and are to appear on both the chemical’s shipped container label and corresponding safety data sheet.

OSHA feels this new classification process and harmonization of label and SDS information will improve worker understanding of the hazards associated with chemicals in their work environment, ultimately, resulting in safer workplaces. Not surprisingly, much of the heavy lifting to comply with the revised regulation lies in the hands of manufacturers who are tasked with reclassifying chemicals and providing the appropriate labels and SDSs to downstream users.

Deadlines

Question 2: What is My Deadline to Comply?

OSHA recognized that compliance couldn’t happen overnight, so it implemented a series of four phased in compliance deadlines that begin Dec. 1, 2013, and end on June 1, 2016 (OSHA Effective Dates). All HazCom covered groups are affected – chemical manufacturers, distributors and importers, and employers.

Timeline

1. Dec. 1, 2013 - Employers must complete training on the new label elements and SDS formats.
2. June 1, 2015 - Manufacturers must begin shipping HazCom 2012 compliant SDSs and labels, which are based on their completed reclassification of chemicals.
3. Dec. 1, 2015 – Distributors/importers must start shipping products with only the new HazCom 2012 compliant labels and SDSs.
4. June 1, 2016 – Employers must update their HazCom programs as necessary, complete additional employee training for any newly identified physical or health hazards based on manufacturers’ reclassification of chemicals, update alternative workplace labeling systems as needed, and ensure that SDSs and labels are up to date.

Recognizing that updated labels and SDSs could begin arriving in workplaces shortly after the publication of the final rule on May 25, 2012, OSHA positioned the Dec. 1, 2013, employee training deadline early in the adoption process to ensure the safety of workers who will be faced with interpreting the new information.

The next deadline applies to manufacturers. By June 1, 2015, manufacturers must complete chemical reclassifications and update the corresponding SDSs and labels. Beginning June 1, 2015, manufacturers can only send out HazCom 2012 compliant SDSs and labels with their chemical shipments.

While some manufacturers jumped on the GHS alignment changes and began sending out updated SDSs and labels in 2012, others may intend to wait until their June 1, 2015, compliance deadline. So, during the transition, it's possible that employers might receive interim semi-compliant MSDSs and labels as manufacturers work to through the process of updating their systems to include the required GHS elements. This could very well muddle what may already be a confusing situation for employers encumbered by the new employee training and HazCom program update requirements placed upon them as part of GHS alignment. Therefore, it's important for employers and employees to know what to look for and to ask suppliers about their plans during the transition. This will allow them to prepare their onsite teams for the arrival of new compliant documents and labels and to adjust their HazCom programs accordingly.

The next deadline, Dec. 1, 2015, applies to distributors and importers. By this date, they must begin shipping products with newly formatted labels and SDSs. OSHA has given them six months beyond the manufacturer deadline to comply to account for the lag time that might exist between when they receive product shipments from manufacturers and when those products are scheduled to be distributed to downstream users, which will prove especially helpful for shipments received close to the manufacturers' June 1, 2015, deadline (OSHA Final Rule 2012).

The final effective date of June 1, 2016, is when employers must be in full compliance. By this date, employers must update their HazCom programs as necessary, complete additional employee training for any newly identified physical or health hazards based on manufacturers' reclassification of chemicals, update alternative workplace labeling systems as needed, and ensure that SDSs and labels for chemicals in their inventory are up to date. OSHA gave employers a full year after the manufacturer deadline to comply, expecting that this would provide a sufficient amount of time for their chemical inventories to turnover and for fresh shipments of products with appropriate HazCom 2012 compliant safety data sheets and labels to arrive.

Labels

Question 3: What are the New Label Requirements?

The answer to this question has two parts, since there are different requirements for labels on shipped containers and workplace labels. We'll start by reviewing shipped container label requirements, because from there, we'll actually get guidance for workplace container labeling requirements.

Shipped Label

The six main six main label elements are as follows:

1. Product/Chemical Identifier
2. Signal Words
3. Hazard Statements
4. Hazard Pictograms
5. Precautionary Statements
6. Supplier Identifier

At a minimum, OSHA requires manufacturers to include the aforementioned label elements on shipped container labels. Once a manufacturer does the work of classifying a chemical, they can reference Appendix C of the rule to find out what specific information is required for the label (OSHA App-C 2012). While these six main pieces of information are required, OSHA does not dictate the layout, typeface or font size required. However, OSHA does say the pictogram element must include the red color of its diamond border. This is another example of where OSHA deviated from the GHS, which permits adopting countries to use black diamond borders for domestic shipments. OSHA requires the red diamond border regardless of where the shipments are going, because it felt that the red color better alerted end-users to the hazards associated with a chemical (OSHA HCS 2012).

Below is a brief description about each of the six elements:

1. **Product Identifier:** The Product Identifier is the nomenclature used to identify the chemical, such as the chemical name or code number. The same identifier should also appear in Section 1 of the SDS (OSHA Brief LP 2013).
2. **Signal Words:** After a chemical has been identified during the chemical classification process, it is assigned one of two signal words, either Danger or Warning. Danger is the more severe of the two and only one of them should appear on the label— the one that represents the most severe of hazards.
3. **Hazard Statements:** These statements are used to describe the nature and degree of hazard associated with a particular chemical. Here's an example of a hazard statement, "Causes damage to lungs through prolonged or repeated exposure when inhaled into lungs." Hazard statements are harmonized under HazCom 2012, so all chemicals with the same hazards, no matter what they are, will have the same base hazard statements. Base hazard statement is specified here because Part C.2.2.1 of the rule says hazard statements can be combined if done to reduce the amount of information on the label and to improve readability, as long as all of the hazards are conveyed as required (OSHA HCS 2012). OSHA also allows, per C.2.2.2 of standard, for statements to be omitted if the manufacturer or other responsible party can demonstrate that all or part of the prescribed hazard statement is inappropriate (OSHA App-C 2012).
4. **Hazard Pictograms:** A pictogram is a harmonized black hazard symbol surrounded by a red diamond border on a white background. Pictograms are new to the rule and OSHA requires that they appear with their red diamond borders on shipped container labels. OSHA has adopted eight of the nine GHS pictograms. The one pictogram OSHA did not adopt was the environmental pictogram, since environmental hazards are not covered by OSHA. OSHA has published a Quick Card entitled "Hazard Communication Standard Pictogram" that provides a quick reference to all eight adopted GHS pictograms. This Quick Card is available on OSHA's website at <http://www.osha.gov/dsg/hazcom/index.html> (OSHA QC-

Pictogram). In order to be considered compliant, a pictogram must contain all of its elements. This means no red diamond borders should appear without their respective black hazard symbols, and no black hazard symbols should appear without their respective red diamond borders.

5. **Precautionary statements:** OSHA now requires manufacturers to place harmonized precautionary statements on labels; this is a key change to the HCS. These statements describe what precautionary measures to take when handling or storing a chemical to prevent or minimize adverse effects resulting from exposure.

There are four types of precautionary statements provided for in the rule and they are: *prevention, response, storage, and disposal* (OSHA App-C 2012). Appendix C spells out exactly which precautionary statements should be included for a particular chemical. Just like hazard statements, precautionary statements may be combined on the label to save space and improve readability.

Here's an example from the OSHA Brief entitled, "Hazard Communication Standard: Labels and Pictograms:" "Keep away from heat, spark and open flames," "Store in a well-ventilated place," and "Keep cool" may be combined to read: "Keep away from heat, sparks and open flames and store in a cool, well-ventilated place" (OSHA Brief LP 2013).

In addition to giving manufacturers flexibility to combine statements, when multiple similar precautionary statements are provided for a hazard, using an order of precedence, the manufacturer, importer or distributor, must place the most stringent statements on the label to ensure rapid action can be taken should a chemical exposure occur (OSHA Brief LP 2013).

6. **Supplier Identifier:** The name, address, and telephone number of the chemical manufacturer, importer, or other responsible party must be included on a label (OSHA App-C 2012).

What about information that doesn't fall into any of these categories? Well, OSHA doesn't preclude manufacturers from including additional non-standardized information on labels, but it does say that manufacturers are limited to doing so only when the additional information "provides further detail and does not contradict or cast doubt on the validity of the standardized hazard information" (OSHA App-C 2012). It also says that the placement of additional information shall not impede identification of information required by the rest of the rule. If these conditions are met, then OSHA says the extra information can be provided in a "Supplementary Information" section of the shipped label.

Examples of information that may be considered supplementary include the following: details about any Hazards Not Otherwise Classified (HNOCs); personal protective equipment (PPE) pictograms, like the HMIS pictogram of a person wearing goggles; directions of use; chemical expiration dates; and fill dates (OSHA Brief LP 2013).

As part of the HCS revision, OSHA is lifting the "stay on enforcement" related to the timeline by which labels are updated 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" (OSHA FAQ 2012).

Workplace Labels

While the requirements for workplace labels differ, the information presented on the shipped label serves as OSHA's benchmark for determining the effectiveness of an employer's workplace label. Employers have two options for secondary or workplace label systems: use or replicate the shipped label or use an alternative compliant label system.

OSHA still uses a flexible performance-based approach for workplace labels. Employers are permitted to retain their current HazCom 1994 compliant system, which can be a homegrown system unique to their workplace, or an alternative labeling systems like HMIS or NFPA, or some combinations of systems, so long as no information on the resulting labels conflicts with the GHS alignment changes and when combined with training and other hazard warning information in the workplace, provides employees with the same level of understanding that shipped labels would've provided (OSHA FAQ 2012).

The other option, and what OSHA might consider a best practice, is to replicate elements of the shipped label. A residual benefit to this option is that it may simplify some of the employer training requirements, since OSHA already requires employers to train employees on the shipped label elements. Also, by using the same label elements found on the shipped label, employers are able to establish consistency in how hazards are communicated in their workplace, which is especially helpful to the employees, who are tasked with interpreting the information.

In terms of achieving compliance, anything other than replicating the shipped label, could place an additional burden on employers. An OSHA inspector may test for employee comprehension of an employer's workplace label system by having an employee look at a container with said label and asking them convey their understanding of the hazard based upon the information on the label. The employee's response will dictate whether an employer's workplace label system is deemed effective. This is why OSHA's approach to workplace labels is called performance based, either the labels perform or they don't.

OSHA's HazCom 2012 continues to give employers alternatives to affixing workplace labels to portable containers used to transfer materials from labeled containers, so long as the portable containers remain under the control of the employee who performs the transfer and are used within a work shift. An example would be a scoop used to transfer chemicals from one labeled container to a second labeled container. So long as the scoop was used only by the worker performing the transfer, and only during the work shift, the scoop would not necessarily need a label.

Something to note, unlike shipped label requirements, OSHA does not require pictograms on workplace labels to have the red diamond border. This makes things easier for employers who wish to use the shipped label format, but perhaps don't have access to a color printer.

SDSs

Question 4: How are Material Safety Data Sheets Changing?

The documents known as material safety data sheets (MSDSs) are to be reformatted under HazCom 2012 to follow a strictly ordered 16-section format and to be renamed as safety data

sheets (SDSs). Despite the formality of the name change, the overall purpose of these documents remains the same. A safety data sheet still serves as the linchpin to an employer's hazard communication program, providing downstream users with comprehensive safety information about hazardous chemicals in their workplace, aiding in chemical inventory management, and connecting the dots to container labels and other forms warnings in the workplace.

To ensure compliance, a good first step employers should take is to verify that their current inventory of MSDSs is up-to-date. This way, employers will have a clear picture of which chemicals to expect updated SDSs and labels for in the near future. The hazardous chemical inventory list—one of the five main components of a compliant employer HazCom program—can serve as the employer's checklist for managing the SDS and label turnover expected as part of GHS adoption.

During the transition, inbound SDSs may look significantly different from the MSDS counterparts they are replacing. Below is the ordered list of sections required on a HazCom 2012 compliant SDS, as of June 1, 2015:

- 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

A compliant SDS must include all 16 sections and their corresponding headings, and the sections must appear in the prescribed order. However, OSHA will not be enforcing the content contained in *Sections 12 through 15* since those sections cover regulations outside of OSHA's jurisdiction (OSHA QC-SDS 2012). If no relevant information is found for any given subheading within a section, OSHA says the SDS preparer should clearly indicate that no applicable information is available (OSHA App-D 2012).

One of the most valuable sections of the SDS is *Section 2 – Hazard Identification*, since this is where information about the physical and health hazards associated with a chemical, such as the precautionary and health hazard statements, signal word, pictograms and other elements from the shipped label are located. There are a couple of compliance-related points worth noting here. First, OSHA doesn't require pictograms on SDSs to have red borders, unlike the requirement for shipped labels. Second, OSHA allows the text description for a given pictogram to be used in lieu

of the black hazard symbol and respective diamond border. For example, OSHA allows the hazard “acute toxicity (fatal or toxic),” to be represented with the words “skull and crossbones” instead of being depicted using the pictogram image.

The new SDS GHS alignment changes improve the overall utility of the safety data sheet. For example, the new strictly ordered, logically sequenced format makes it easier for employees and first responders to navigate to critical information of interest, such as that found in *Section 4– First-Aid* measures and *Section 5– Fire-fighting* measures. OSHA intentionally positioned emergency response information near the top, in *Sections 1-8*, while placing more technical information, like *Section 11 – Toxicological* information, in the lower sections (OSHA HCS 2012).

Also, with the new harmonization of information in each section, SDSs become more useful as tools for meeting sustainability initiatives, allowing employers to compare multiple SDSs of a particular product to identify safer substitutes.

OSHA is still requiring SDSs to be provided in English at a minimum. However, versions in other languages are acceptable as needed to address multi-lingual work environments, and in some instances, may even be required.

Training

Question 5: What are My Employee Training Requirements?

Another area where OSHA departed from the United Nations’ template in its alignment with GHS is in regards to training. One of OSHA’s alignment principles was to retain, not lose any protections of its existing HazCom 1994 Standard, so when adopting the United Nations’ GHS, which didn’t have requirements in place for training, OSHA made provisions to ensure its employee training requirements remained intact when it aligned with GHS. It’s worth restating that the same five components of a compliant employer HazCom program still exist in the revised HazCom 2012, and they are: 1) a written plan; 2) chemical inventory; 3) labels and warnings; 4) training; and 5) SDSs. This means even under the revised HCS, employers have the same basic training obligations.

The only real change to this obligation involves what has to be covered during the phased-in compliance deadlines of Dec. 1, 2013, and June 1, 2016. By the Dec. 1, 2013, employers must complete employee training on the new labels and SDS formats. As mentioned earlier, employers need to complete their training early in the adoption process to ensure the safety of their workers. OSHA expects newly formatted SDSs and labels to arrive in workplaces anytime between the May 2012 effective date and the manufacturer and distributor effective dates of June 1, 2015, and Dec. 1, 2015, respectively.

The sooner employers train their employees on this information, the sooner those employees will be able to alert them when new SDSs and labels arrive from their various suppliers, helping facilitate a smoother HazCom program transition in the workplace. As previously suggested, it behooves employers to check in with suppliers to learn about their plans during the transition, so they know when to expect HazCom 2012 compliant SDSs and labels and can adjust their activities and HazCom program updates accordingly.

In the new OSHA Brief entitled “December 1st, 2013 Training Requirements for the Revised Hazard Communication Standard,” the agency describes what must be covered at a minimum to meet the employee training deadline requirements. Essentially, what it comes down to is that employer training needs to go beyond a quick rundown of the names of SDS section headings and six main label elements, to actually explaining: what each section of an SDS and label represents, what types of information might appear in each section, what some examples of information conveyed in the sections might be, how that information can be used in the workplace, and how that information ties into other areas of the employer’s HazCom Program (OSHA Fact Sheet Training).

For example, when covering labels, an employer might explain that the “Product Identifier” is the name used to refer to a given chemical. It can be an actual product name, a batch number or some other reference, and the same name should also appear in *Section 1 – Identification* of the SDS. The employer might add how the product identifier is used in their HazCom Program on the required chemical inventory list.

By June 1, 2016, the fourth and last effective date for the revised standard, employers must complete any necessary HazCom program updates, including updates to the written plan and the chemical inventory list. They must also use updated SDSs and labels, update workplace labels as necessary and complete training on any newly identified hazards that may have resulted from manufacturer chemical reclassifications.

Authoring

Question 6: What Do I Need to Know about SDS Authoring?

Manufacturers and distributors are responsible for providing safety data sheets to downstream users. The adoption of GHS requires manufacturers to go back and reclassify their chemicals and provide updated SDSs and labels in the new HazCom 2012 compliant format by June 1, 2015. Any distributors or employers who mix chemicals onsite, or choose not to rely on the SDSs and labels provided to them by manufacturers, assume the same responsibilities as manufacturers and must prepare compliant SDSs and labels by the June 1, 2015, deadline as well. Manufacturers, or those assuming their responsibility, can prepare these documents and labels on their own or can enlist the help of professional authoring services.

Eventually, once up the learning curve on the new classification process, GHS alignment will actually make the authoring process easier. One way it will do this is by reducing some of the testing requirements placed upon U.S. manufacturers, allowing them to reference existing scientific data for the chemicals they are classifying (OSHA Proposed 2009). Another way GHS will simplify the process is by removing the guesswork out of determining what information to place on labels and SDSs. Once a chemical’s hazard class and possibly hazard category have been identified, Appendix C and D of the standard can be referenced for determining what exactly should appear on the corresponding SDSs and labels. They serve as the recipe books for label and SDS preparation.

With objectives for GHS adoption including simplifying international trade, some companies have asked about the permissibility of authoring hybrid documents that aim to meet multiple

country or agency requirements. OSHA permits this, but companies might want to take a few things into consideration when pursuing this path.

If a company has identified a legitimate rationale for adding the information, the next thing to consider is where the document will be shipped to and used. Companies will want to make sure other countries, regions or agencies will accept a hybrid document. Companies should also keep downstream users in mind and how they might interpret a document containing multiple agency or country guidelines. It could cause confusion to end-users who have to decipher what's what, and as a result, may subsequently place additional training burdens on their employers.

A situation where a hybrid document might work could be for a company interested in creating a North American document that would be compliant in the United States, Canada and Mexico. Depending on where it is being distributed, it may just have to be translated into both Mexican Spanish and Canadian French. A situation where a hybrid document might not work could be for countries like China and Japan, which have such different requirements that trying to combine, condense and communicate the two systems' requirements into a single document could very well complicate matters more than help them.

Regardless, each business' needs are unique and a hybrid document may be the best avenue for some to take. For those utilizing an authoring service, an experienced provider will be able to ask the right questions and collaborate with the manufacturing company to determine the best approach.

Another common compliance concern for those with SDS authoring interests relates to the treatment of non-HazCom 2012 mandated information. OSHA does permit SDS preparers to include additional information in various sections of the document (OSHA Brief SDS 2012). An example of additional information a manufacturer may want to incorporate onto an SDS is HMIS and NFPA rating information. This type of information can go into *Section 16 - Other Information* or possibly even into other applicable sections of the SDS.

Managing Versions of MSDSs

Question 7: What Should I Do with Older Versions of MSDSs?

As updated safety data sheets start rolling in, the first thing employers need to do is look them over and compare them to the MSDSs they'll be replacing, to see what's changed if anything. Outside of the new format, there may be newly identified hazards that need to be addressed with employees via training. Next, employers will need to update their safety data sheet library or libraries.

Some of what to do with older versions of MSDSs is left to the employer's discretion. OSHA's HazCom standard doesn't require employers to retain older versions of MSDSs; however, a different OSHA standard — the Access to Employee Exposure and Medical Records Standard — does permit the archival of MSDSs as a way to record employee exposure to substances in the work environment (OSHA 1910.1020). If employers choose to meet that standard's requirement via archiving MSDSs, as opposed to the other option permitted by the rule of maintaining a list of chemicals, along with where and when they were stored, then employers would need to retain older versions MSDSs.

Regardless of how employers are doing things now, they should consider how they might handle a hypothetical situation where a former employee comes back and asks about certain chemicals he or she was exposed to while employed with the company. In this instance, the more information an employer has available, the better position the employer will be in to paint an accurate picture of the hazards the employee was exposed to and the type and quality of hazard information that was available to the employer at that time. Of course, if the employer maintains thousands of SDSs, it may not be practical to file and store all the old SDSs and their many revisions for 30 years or more. This is a case where an electronic system could be of great benefit, allowing employers to retain, not just older versions of the documents, but also the additional information about where and when those chemicals were used.

Canada's Adoption of GHS

Question 8: What is Canada's plan for GHS adoption?

WHMIS stands for Workplace Hazardous Materials Information System. It is Canada's national hazardous chemical communication standard and it is administered at the national level by Health Canada and implemented throughout the country through coordinated federal, provincial and territorial legislation (Health Canada 2013). Canada has played a big role in the development of GHS. In fact, like OSHA's HazCom standard, WHMIS was one of the four major hazardous chemical standards upon which the United Nations' GHS was created. Since its participation in the development of GHS more than 10 year ago, Canada has been working on its own plans for adoption with the system, giving careful consideration about how best to implement it given its layers of territorial, provincial, multi-agency and stakeholder interests.

Canada and the United States are working to ensure WHMIS and HazCom 2012 are tightly aligned. The governments of Canadian Prime Minister, Steven Harper, and President Obama have formed the Joint Action Plan for Canada-US Regulatory Cooperation Council, through which they have pledged to "align and synchronize implementation of common classification and labeling requirements for workplace hazardous chemicals" (UN Canada 2012).

Right now, the expectation is for Canada to publish its proposal to align WHMIS with GHS this spring, with the most recently stated goal of publishing an enacted rule in the Canada Gazette II in spring of 2014. This would bring a June 1, 2015, expected effective date for implementation at the territory and province level. The timing is intended to bring WHMIS' GHS alignment on line at the same time that the United States hits its major GHS adoption compliance deadline of June 1, 2015.

Electronic MSDS Management

Question 9: How Does GHS Alignment Change Electronic MSDS/SDS Management?

Updates to HCS as part of GHS adoption have not changed the rules surrounding electronic management and deployment of MSDSs and SDSs. Electronic systems are still permitted so long as there is no barrier preventing employee access to the SDSs, a compliant back-up system is in place for retrieving SDSs during foreseeable emergencies like power-outages, and hard copies of SDSs can be provided upon request.

Here is an excerpt from the directive in the HazCom 2012 regulatory text, paragraph (g)(8) that explains OSHA's provisions for electronic management of safety data sheets, "The employer shall maintain in the workplace copies of the required safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)" (OSHA HCS 2012).

The following is an excerpt from paragraph (g)(11) of the regulatory text about the requirement for an employer to be able to produce a hard copy safety data sheet upon request. "Safety data sheets shall also be made readily available, upon request, to designated representatives, the Assistant Secretary, and the Director, in accordance with the requirements of 29 CFR 1910.1020(e)."

For employers currently managing safety data sheet libraries with paper binders alone, handling the impending document churn expected as a result of GHS alignment might prove a daunting task, especially for businesses with hundreds to thousands of documents and several departments or facilities to manage. This is an area where a cloud-based electronic solution can help, by consolidating company-wide inventories of safety data sheets, alerting users when new versions of SDSs have arrived, and providing several means for generating compliant back-ups to SDS libraries. In addition, there are cloud-based solutions that can facilitate employee right-to-know access to SDSs.

Other Areas Impacted by the Revised HazCom Standard

Question 10: Are Any Other Standards Affected by HazCom Alignment with GHS?

OSHA's adoption of GHS has impacted other OSHA substance-specific and industry standards that refer to the HCS. In fact, modifications were made to most of OSHA's substance-specific health standards to ensure that definitions of hazards and requirements for things like signs, labels and SDSs would be consistent with the modified rule. Amendments were also made to the scope of certain standards to prevent the GHS-alignment revisions from changing the scopes of those standards. A list of all the updated standards is available in final rule text (OSHA HCS 2012).

The new wording requirements for warning signs and labels for the affected health standards are listed in Table XIII-4., Regulated Area Signs in Substance-Specific Health Standards of the final rule (OSHA Final Rule 2012). The following is an example of the language change for Lead, 1910.1025: The original area signs had to display the following language: WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING, with HazCom 2012 alignment, the signs now have to read DANGER, LEAD, MAY DAMAGE FERTILITY OR THE UNBORN CHILD, CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM, DO NOT EAT, DRINK OR SMOKE IN THIS AREA (OSHA Final Rule 2012).

In addition to language for regulated area signs, OSHA added a new paragraph to each of the related substance-specific standards to achieve consistency across the standards and with the GHS principles. The new paragraph states: "Hazard Communication – General. (i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the

Hazard Communication Standard (HCS) (29 CFR 1910.1200) for [chemical name] 508 (ii) In classifying the hazards of [chemical name] at least the following hazards are to be addressed: [hazard information]. (iii) Employers shall include [chemical name] in the hazard communication program established to comply with the HCS. Employers shall ensure that each employee has access to labels on containers of [chemical name] and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph [Training paragraph] of this section” (OSHA HCS 2012).

OSHA’s HazCom 2012 deadline dates also affect substance specific standards. According to the final rule “Employers must be using new labels for contaminated clothing and waste and debris by June 1, 2015, the date by which manufacturers and importers must comply with the labeling and SDS requirements of the revised HCS. Employers must post the new signs by June 1, 2016, the same date by which employers must also update their hazard communication plans for any new hazard information they receive as a result of the final rule. In the meantime, as with the revised HCS, employers must comply with either the old or new labeling and signage requirements. Provisions to this effect are inserted for each substance-specific standard in this final rule” (OSHA HCS 2012).

Examples of other standards affected include the Hazwoper Standard, the Welding, Cutting and Brazing Standard, the Flammable and Combustible Liquids Standard, the Process Safety Management (PSM) Standard, and the Occupational Exposure to Hazardous Chemicals in Laboratories Standard (Laboratory Standard).

The definition of a *health hazard* was modified in the Hazwoper standard. Definitions in the Flammable and Combustible Liquids standards were aligned with the GHS modifications to HazCom. Labeling requirements for the Welding, Cutting and Brazing standard were modified to be consistent with HazCom. For the Laboratory Standard, OSHA modified most of the Definitions paragraph (b) in §1910.1450 to ensure that the definitions in the GHS-modified HCS would also apply to the standard (OSHA HCS 2012). Modifications included deleting some definitions, revising others and adding new definitions to the standard. For example, OSHA revised the definitions of *Hazardous Chemical*, *Physical Hazard*, and *Reproductive Toxins* in paragraphs and added definitions for *Health Hazard* and *Mutagen*. Additionally, to keep the scope of certain other standards in place, a few technical amendments were made to other safety standards that currently use the term *combustible* (OSHA HCS 2012).

An example of OSHA making modifications to avoid changing the scope of a rule coverage, is for the PSM standard, where OSHA changed the provision covering flammable gases and liquids to include only Category 1 flammable liquids and gases that have flashpoints below 100 °F (37.8 °C) to be consistent with the criteria specified in the HazCom 1994 (OSHA HCS 2012). If OSHA did not modify this provision, the scope of PSM would have actually expanded because GHS alignment changed the HCS definition of flammable liquid from liquids with a flashpoint below 100 °F (37.8 °C) to the new GHS-aligned definition of liquids with a flashpoint at or below 199.4 °F (93 °C).

There is also an EPA regulation affected by the HazCom alignment with GHS. Companies that meet certain reporting threshold criteria set forth by Section 311 of EPA’s EPCRA, also known as SARA Title III, are required to provide material safety data sheets (MSDS) to their state emergency response commission, the Local Emergency Planning Committee, and the local

fire department that has jurisdiction over their facility. While, Section 311 is typically a one-time reporting requirement, EPA does require covered companies to provide updates when there are significant changes to the information that was already submitted. As such, companies should be prepared to submit any newly identified health hazard information and SDS updates that result from OSHA aligning HazCom with GHS (EPA 2012).

Conclusion

OSHA's adoption of GHS provides consistency to the classification and communication of dangerous chemicals in the workplace, which not only brings the United States closer to unifying its system for international trade purposes, but helps elevate the rule from a *right-to-know* to a *right to understand* standard, thus allowing all users— even low literacy workers—to better understand the hazards associated with chemicals in their work environment. This newfound knowledge can save lives and money. In fact, OSHA estimates annualized benefits of GHS alignment to include saving the lives of 43 workers and \$585 million in cost reductions and productivity improvements (OSHA FAQ 2012).

EH&S professionals are not alone in their quest to comply with OSHA's GHS-aligned HazCom Standard. With a little patience, a commitment getting up the learning curve, and the help of the many resources available to them, such as those available through OSHA, they can certainly simplify their HazCom 2012 compliance roadmap.

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