

THE STREAMLINED GUIDE TO GHS

A Complete Resource
to Navigate
HazCom/GHS
Compliance



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CHAPTER 1

WHAT IS GHS?

At this point, GHS is a familiar term, but how much do you really know about what it is and the steps you need to take to comply with it?

WHAT IS GHS?

To explain GHS, we first have to start with the OSHA's HazCom Standard (CFR 1910.1200).

This standard is focused on ensuring chemical safety in the workplace by requiring chemicals to be labeled and chemical hazards to be identified in a way that is easily understood by workers. It entails:

- Chemical manufacturers and importers to classify the hazards of the chemicals they produce or import, and prepare labels and safety data sheets (SDS) to convey the hazard information to their downstream customers
- Employers with hazardous chemicals in their workplaces to provide labels and SDSs for their hazardous chemicals, and train exposed workers to understand the chemical hazards.



TERMS AT-A-GLANCE	
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
OSHA	Occupational Safety and Health Administration
HazCom	Hazard Communication

First established in 1994, the HazCom Standard has frequently made OSHA's list of Top 10 Most Frequently Cited Violations. In fact, in 2014 it ranked second on the list with 6,148 total violations¹.

The most violated sections of the HazCom standard include:

#1 1910.1200(H)(1)

Employee information and training

#4 1910.1200(F)(1)

Labels on shipped containers

#2 1910.1200(E)(1)

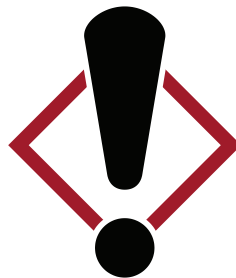
Developing, implementing and maintaining a written hazcom program

#5 1910.1200(I)(1)

Employee training on new label elements and Safety Data Sheets format by Dec. 1, 2013

#3 1910.1200(G)(1)

Developing and maintaining written Safety Data Sheets



DID YOU KNOW?

IN 2014 ALONE, THERE WERE

**6,148
VIOLATIONS**

TO THE HAZCOM STANDARD.

GHS OVERVIEW

GHS is an international system that the United Nations created for the unified classification and labeling of chemicals. GHS has been fully or partially implemented in about 67 countries and in 2012², OSHA updated its HazCom Standard to align with GHS in order to support global efforts to standardize chemical labeling.

While the HazCom standard gave workers the right to know, GHS gives them the right to understand.

What does that mean?

“ Revising OSHA’s Hazard Communication Standard will improve the quality and consistency of hazard information, making it safer for workers to do their jobs and easier for employers to stay competitive³. ”

Hilda Solis, U.S. Secretary of Labor

WHAT HAS CHANGED?

Previously, chemical labeling appeared differently based on regional requirements – so handling chemicals from another region could be confusing, dangerous and complex for both users and international manufacturers. Which could be a problem when you consider that the production of chemicals is more than a \$1.7 trillion per year global enterprise, with \$400 billion spent each year in the U.S. alone⁴.

The GHS standard supports making the import, export and usage of chemicals as safe and efficient as possible by keeping those who handle chemicals better informed. Let's compare the key differences between the old and new standards:

1994 HAZCOM STANDARD

Chemical manufacturers and importers could convey hazard information on labels and material safety data sheets (MSDS) **in the format of their choice.**

2012 HAZCOM STANDARD (WITH GHS)

Provides a **single set of harmonized criteria for classifying chemicals** according to their health and physical hazards and specifies hazard communication elements for labeling and safety data sheets.

With OSHA's adoption of GHS, additional areas of change include:

HAZARD CLASSIFICATION

Follow specific criteria to address health and physical hazards, as well as classification of chemical mixtures.

LABELS

Labels must include a signal word, pictogram, hazard statement and precautionary statement for each hazard class and category.

SAFETY DATA SHEETS

New format requires 16 specific sections, ensuring consistency in presentation of important protection information.

INFORMATION AND TRAINING

Workers should have been trained by December 1, 2013, on the new label elements and safety data sheet format, in addition to the training requirements for new chemicals and new workers.

THE BENEFITS OF GHS

The updated HazCom standard covers over 43 million workers who produce or handle hazardous chemicals in more than five million workplaces across the country. The modification is expected to **prevent over 500 workplace injuries and illnesses, and 43 fatalities annually.**

In addition, it could **save businesses in the U.S. more than \$475 million** in productivity improvements due to fewer safety data sheet and label updates, clearer labels and simpler training⁵.

These safety and financial enhancements are achievable through:

- Improved quality and consistency of hazard information
- Enhanced worker comprehension of hazards
- Reduced confusion in the workplace
- Quicker access to information on safety data sheets
- Reduced trade barriers around the world



CHAPTER 2

CHECKLISTS FOR GHS COMPLIANCE

Find out what steps you need to take to reach compliance.

COMPLIANCE CHECKLIST

GENERAL COMPLIANCE

Best Practice: Continue enhancing your HazCom program throughout your journey to HazCom/GHS compliance.

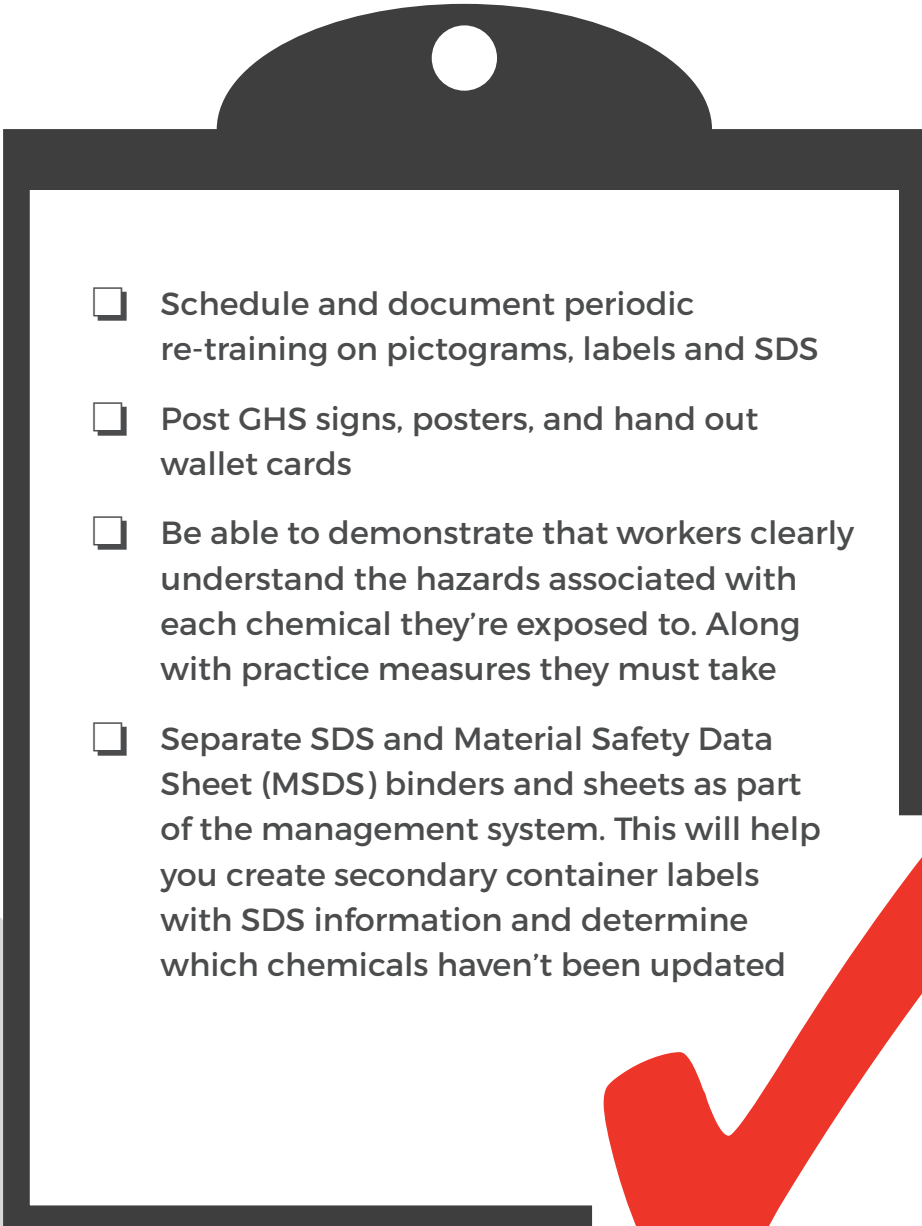

Keep these tasks in mind:

- Note any new hazards identified on Safety Data Sheets (SDS) and potential Personal Protection Equipment (PPE) changes. As new chemicals are brought into your facility, new hazard and PPE needs may be created
- Ensure your written HazCom program is updated and reflects all internal and external changes
- Provide training to all new employees working with hazardous chemicals



TRAINING

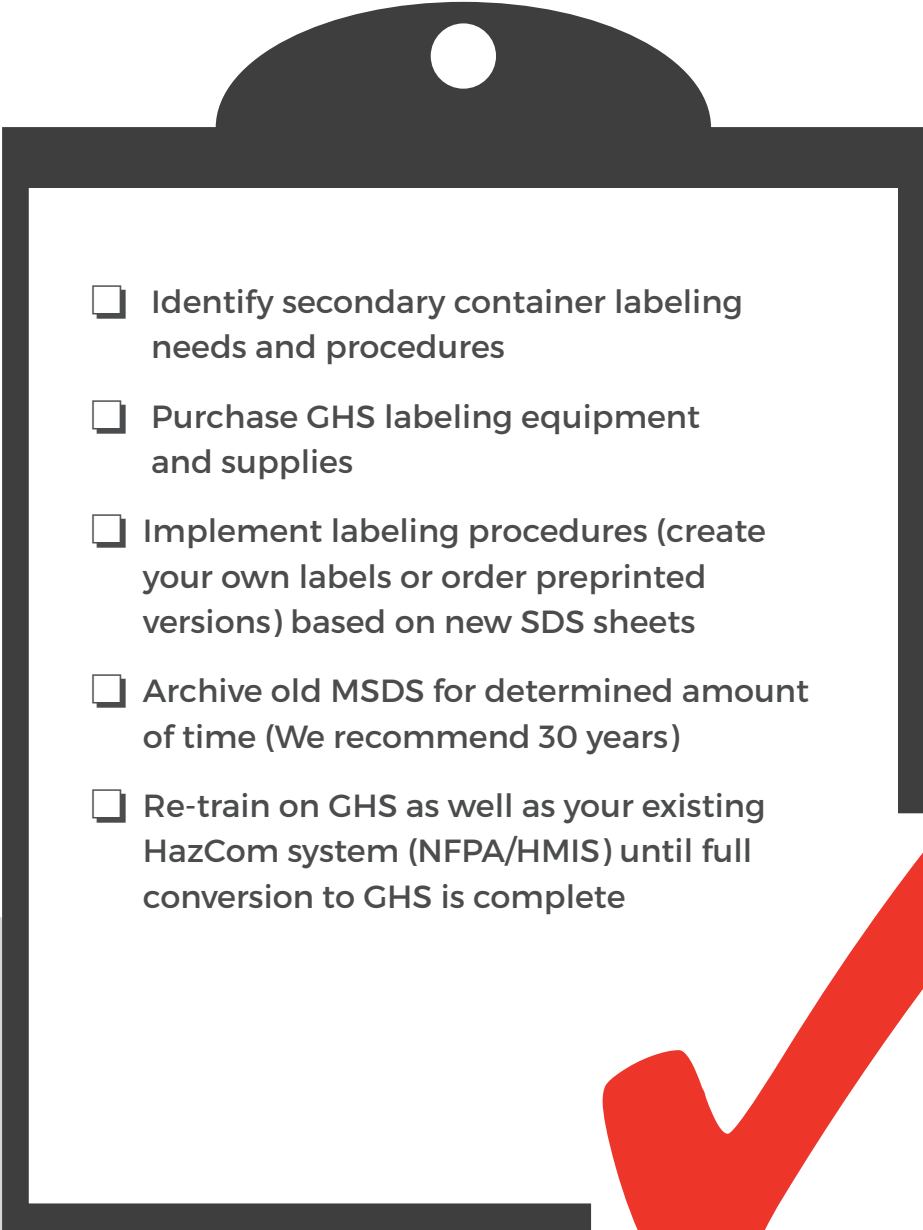

Employers must train employees on the new label elements and Safety Data Sheet (SDS) format.

- 
- Schedule and document periodic re-training on pictograms, labels and SDS
 - Post GHS signs, posters, and hand out wallet cards
 - Be able to demonstrate that workers clearly understand the hazards associated with each chemical they're exposed to. Along with practice measures they must take
 - Separate SDS and Material Safety Data Sheet (MSDS) binders and sheets as part of the management system. This will help you create secondary container labels with SDS information and determine which chemicals haven't been updated
- 



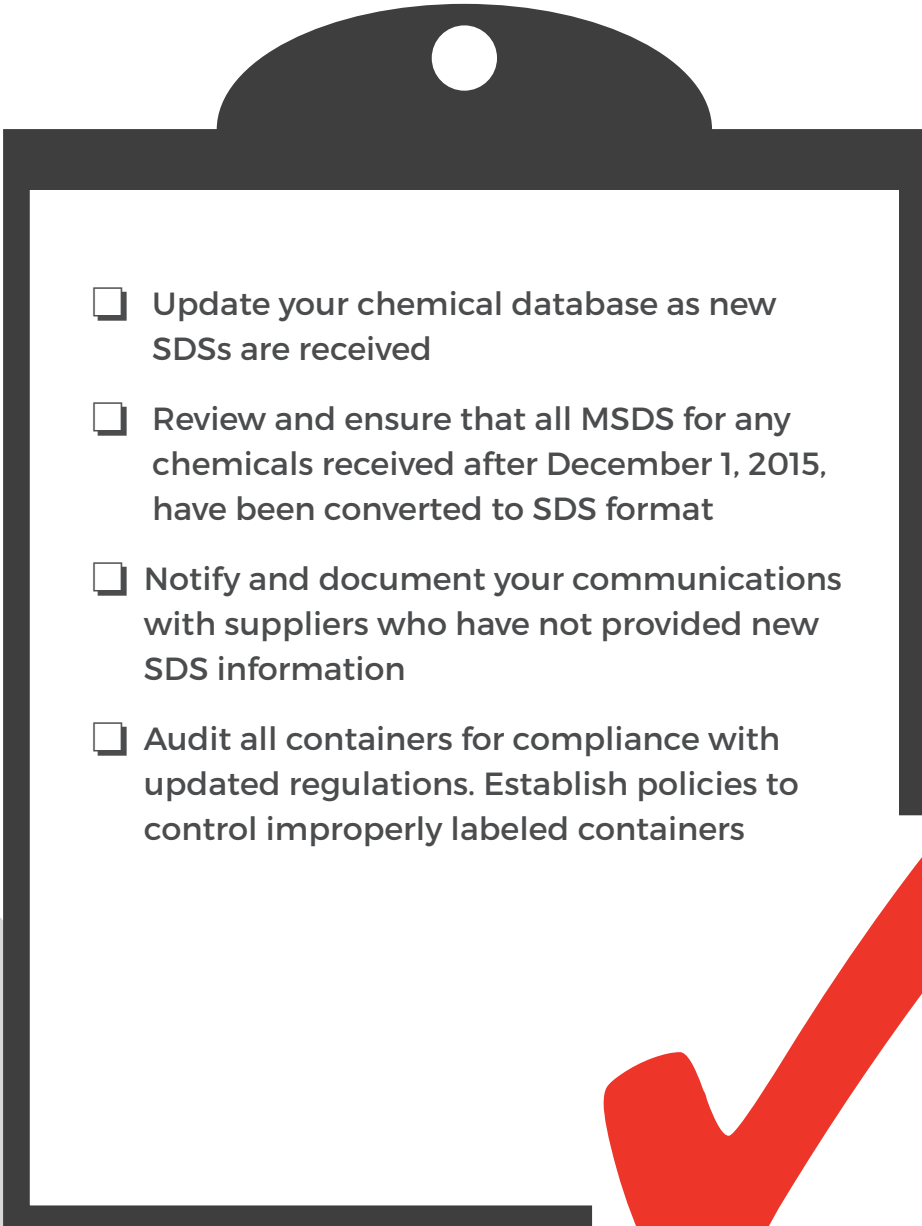
DISTRIBUTORS: RECLASSIFY CHEMICALS

Chemical manufacturers, importers and distributors reclassify chemicals, and send chemicals with SDSs and labels in GHS format.

- 
- Identify secondary container labeling needs and procedures
 - Purchase GHS labeling equipment and supplies
 - Implement labeling procedures (create your own labels or order preprinted versions) based on new SDS sheets
 - Archive old MSDS for determined amount of time (We recommend 30 years)
 - Re-train on GHS as well as your existing HazCom system (NFPA/HMIS) until full conversion to GHS is complete
- 

DISTRIBUTORS: UPDATE SDSs

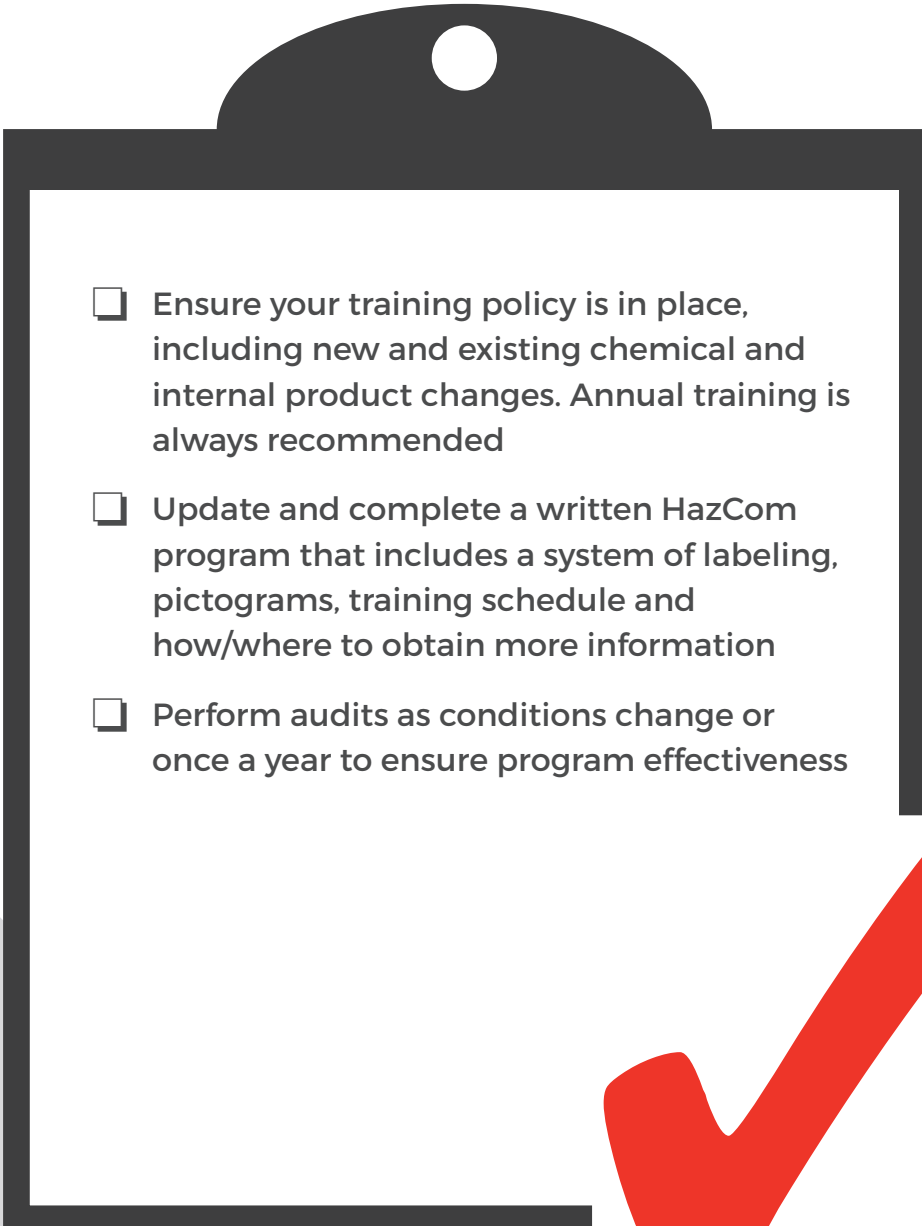
Distributors send only chemicals with updated SDSs and labels.

- 
- Update your chemical database as new SDSs are received
 - Review and ensure that all MSDS for any chemicals received after December 1, 2015, have been converted to SDS format
 - Notify and document your communications with suppliers who have not provided new SDS information
 - Audit all containers for compliance with updated regulations. Establish policies to control improperly labeled containers



EMPLOYERS: FULL COMPLIANCE

These last few steps help employers to reach full compliance in the workplace.

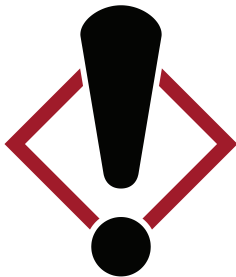
- 
- Ensure your training policy is in place, including new and existing chemical and internal product changes. Annual training is always recommended
 - Update and complete a written HazCom program that includes a system of labeling, pictograms, training schedule and how/where to obtain more information
 - Perform audits as conditions change or once a year to ensure program effectiveness



CONTINUOUS COMPLIANCE

Be proactive about your GHS alignment! Here are some steps to take to help keep GHS top of mind in your workplace.

- Create and maintain a chemical database
- Maintain back-up source of information that's immediately accessible
- Request any missing MSDS or SDS sheets
- Train any new employees
- Keep leadership informed



TIP

MOST OF THE SDSs YOU NEED MAY BE AVAILABLE ONLINE OR THROUGH THIRD PARTY PROVIDERS, SUCH AS MSDSONLINE (MSDSONLINE.COM)

CHAPTER 3

5 STEPS TO GHS

Creating a compliant and sustainable HazCom/GHS program can seem like a lot. By splitting it into 5 areas, you'll be ready before you know it!

In the following chapters, we'll go into more detail on just what each of these steps includes. But first, we'll give you a glimpse at the steps you need to take to achieve a complaint, and safer, workplace:

#1 DEVELOP A WRITTEN HAZCOM PLAN

Include a summary of the hazardous chemicals, along with your written HazCom program or policy and training.

#4 LABEL ALL HAZARDOUS STORAGE CONTAINERS, PIPES AND TANKS

Clearly communicate hazards to your employees with highly visible, durable labels.

#2 INVENTORY ALL HAZARDOUS CHEMICALS

Make a list of all of the hazardous chemicals being used throughout your facility.

#5 TRAIN AND COMMUNICATE THE ELEMENTS OF HAZCOM TO YOUR WORKFORCE

Regular employee training, re-training and communication are essential elements of HazCom success.

#3 ESTABLISH AND MAINTAIN A COMPLETE LIBRARY OF SAFETY DATA SHEETS (SDS)

Employees should have immediate access to SDSs at all times.

CHAPTER 4

WRITTEN HAZCOM PLAN

Let's dive into exactly what each step entails, starting with a plan - The first step towards HazCom success.

DEVELOP A WRITTEN HAZCOM PLAN

Your HazCom plan is what documents and outlines how your organization responds to hazardous chemicals. You should have this written plan in place, maintained and easily accessible to employees at your workplace in order to keep them informed and safe from harm.

Along with safety, you need a HazCom program to reach compliance. In fact, according to OSHA's 29 CFR 1910.1200(e) regulation, a written HazCom plan must include (at minimum):

- Purpose and scope of the program
- A list of known hazardous chemicals in the workplace (listed in the format of SDS)
- Labels that coincide with current information in the SDS
- Training and information for employees to understand the HazCom standards, including new GHS labels and SDSs
- Methods for updating, evaluating and conveying information about chemical hazards
- Methods to accomplish non-routine tasks surrounding hazardous chemicals and the associated risks involved in executing those tasks (i.e. cleaning reactor vessels)
- Storage and transportation methods of hazardous chemicals and materials
- Where and how employees must travel between workplaces and work shift changes when dealing with hazardous chemicals and materials

A sample program can be found on OSHA's website:
www.osha.gov/dsg/hazcom/solutions.html.

CHAPTER 5

HAZARDOUS CHEMICAL INVENTORY MANAGEMENT

On to inventory! After all, when it comes to HazCom compliance, it's essential to know what chemicals you're dealing with.

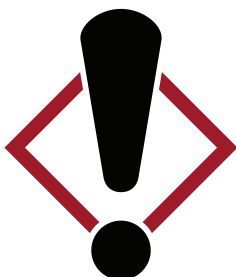
INVENTORY ALL HAZARDOUS CHEMICALS

It should come as no surprise that one of the most important parts of having an effective HazCom program is knowing what chemicals you use at your facility. That means taking inventory of every chemical that is handled and maintaining this inventory throughout the year.

For easy inventory management, make sure all containers are barcoded and you implement an inventory management system. This should include:

1. Location tracking
2. Container tracking and reconciliation reporting
3. Unit of measure conversion and calculations
4. Material approval routings
5. Managing restricted and banned chemicals
6. Notifications of exceeded thresholds

With your chemicals accounted for and a system in place to continually track your chemicals, you're ready for Safety Data Sheets (SDS).



BEST PRACTICE TIP

WHEN GOING THROUGH AND INVENTORING YOUR CHEMICALS, TAKE THE TIME TO PROPERLY DISPOSE OF ANY UNUSED OR OUTDATED CHEMICALS AND ORGANIZE THE ONES YOU NEED TO KEEP.

CHAPTER 6

SAFETY DATA SHEETS

You know what chemicals you have. Now you need to keep them documented by using Safety Data Sheets (SDS).

As we dive into Safety Data Sheets (SDS), we'll answer some of the hot questions on this topic:

WHAT IS AN SDS?

Formerly called Material Safety Data Sheets (MSDS), the new Safety Data Sheets (SDS) follow a consistent, user-friendly format to communicate chemical hazards. They provide the information that's needed to understand what the chemical is, what hazards it presents and how to respond to these hazards. SDSs must accompany any hazardous chemicals that are distributed. Most of the SDSs you need may be available online or through third party providers, such as MSDSONline.

WHAT DOES AN SDS INCLUDE?

The detailed information needed on SDSs includes these 16 sections:

SECTION 1 IDENTIFICATION

Chemical name, recommended uses and supplier contact information.

SECTION 2 HAZARD(S) IDENTIFICATION

Hazards of the chemical and the appropriate warning information.

SECTION 3 COMPOSITION/INFORMATION OF INGREDIENTS

Ingredients contained in the products.

SECTION 4 FIRST-AID MEASURES

Initial care that should be given by an untrained responder to an individual exposed to the chemical.

SECTION 5 FIRE-FIGHTING MEASURES

Recommendations for fighting a fire caused by the chemical.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Appropriate response to spills, leaks or releases, including containment and cleanup practices.

SECTION 7 HANDLING AND STORAGE

Safe handling practices and conditions for safe storage of the chemical.

SECTION 8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure limits, engineering controls and personal protective measures to minimize worker exposure.



SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties associated with the substance or mixture.

SECTION 10 STABILITY AND REACTIVITY

Reactivity hazards and stability information.

SECTION 11 TOXICOLOGY INFORMATION

Information regarding toxicological and health effects, or an indication that such data is unavailable.

SECTION 12 ECOLOGICAL INFORMATION

Environmental impact of the chemical if it were released in to the environment.

SECTION 13 DISPOSAL CONSIDERATIONS

Proper disposal and recycling, or reclamation and safe handling practices.

SECTION 14 TRANSPORT INFORMATION

Classification information for shipping and transporting.

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product that is not indicated anywhere else on the SDS.

SECTION 16 OTHER INFORMATION

When the SDS was prepared or when the last known revision was made.

HOW DO YOU OBTAIN AN SDS?

Chemical manufacturers, distributors or importers are required to create SDSs for any chemical they offer. These SDSs are then provided down the line to the companies that purchase and use the chemicals, in order to effectively communicate any relevant chemical information and hazards.

WHEN YOU HAVE THE SDS, HOW DO YOU GET TO A LABEL?

When you need to create your compliant GHS labels, the SDS has the content you need. With the SDS information in hand, you're then ready to order pre-printed labels or quickly create labels onsite with the right printing system.

CHAPTER 7

CHEMICAL LABELING

Speaking of labels, let's move on to what you need to label under GHS and what these labels should include.

CHEMICAL LABELING

Labeling is the foundation of GHS. In fact, GHS specifically aims to improve the quality and consistency of chemical labeling in order to enhance worker comprehension for safer chemical handling.

Primary chemical containers must have 6 key elements in order to be safely and compliantly handled in the workplace. The pictograms on the labels should be consistent with the pictograms that OSHA has provided, utilizing matching symbols and color schemes.

All chemicals that are shipped from chemical manufacturers must contain this information, so let's dive into the 6 label elements and pictograms you need.



TERMS AT-A-GLANCE

PRIMARY CONTAINER

The chemical container sent directly from your chemical manufacturer

SECONDARY CONTAINER

The container that chemicals are transferred to once within the workplace

6 LABEL ELEMENTS

#6 MANUFACTURER INFORMATION

Company name, address & telephone number.
(SDS Section 1)

#3 PRODUCT NAME OR IDENTIFIERS*

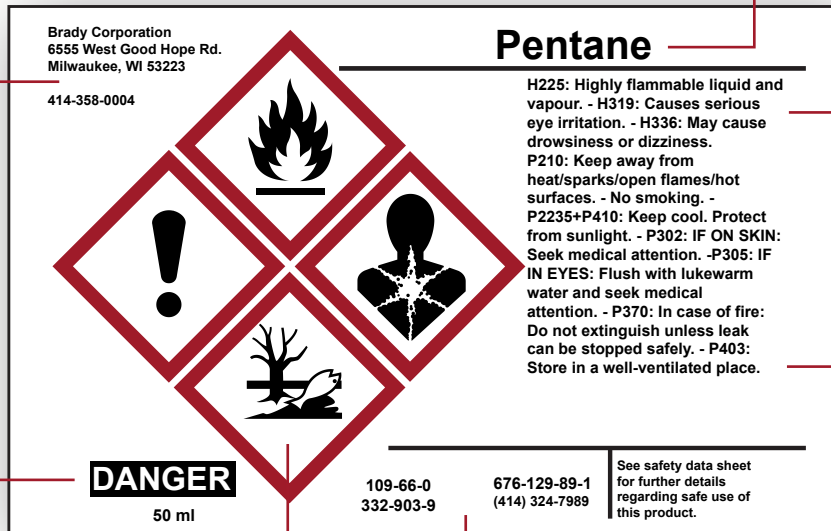
(SDS Section 1)

#4 HAZARD STATEMENTS

Phrases that describe the nature of hazardous products and associated risks if precautionary action is not taken.
(SDS Section 2)

#5 PRECAUTIONARY STATEMENTS

Phrases associated with each hazard statement, that describe general preventative, response, storage or disposal precautions.
(SDS Section 2)



* Additional Product Identifiers

#1 SIGNAL WORD

Indicates relative severity of hazard. "Danger" is used for most severe instances, while "Warning" is less severe.
(SDS Section 2)

#2 SYMBOLS (HAZARD PICTOGRAMS)

Convey health, physical and environmental hazard information with red diamond pictograms. May use a combination of one to five symbols.
(SDS Section 2)

PICTOGRAM GUIDE

CHEMICAL/ PHYSICAL RISK

EXPLODING BOMB

Explosives, self-reactives, organic peroxides



FLAME

Flammable gases, liquids, & solids; self-reactives; pyrophorics; self-heating



FLAME OVER CIRCLE

Oxidizing gases, liquids and solids



GAS CYLINDER

Compressed gases; liquefied gases; dissolved gases



CORROSION

Corrosives to metals



HEALTH RISK

CORROSIVE

Skin corrosion; eye damage



SKULL AND CROSSBONES

Acute toxicity (severe, fatal)



EXCLAMATION MARK

Irritant, dermal sensitizer, acute toxicity (harmful)



HEALTH HAZARD

Carcinogens, respiratory sensitizers, reproductive toxicity, target organ toxicity, germ cell mutagens



ENVIRONMENTAL RISK

ENVIRONMENT

Aquatic toxicity

(Not regulated by OSHA)





PRIMARY CONTAINER LABELING

Primary chemical containers are the bags, barrels, bottles, boxes, cans, cylinders and drums that you receive from the manufacturer. These containers should be labeled following the GHS mandates, with the 6 label elements, including the appropriate hazard pictograms.

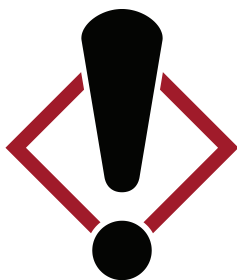
When a label is on a container directly from a supplier, this label cannot be removed, altered or defaced. If it needs to be replaced, the new label must contain the same information as the original.

SECONDARY CONTAINER LABELING

Secondary containers are usually smaller containers, such as spray bottles, jugs, carboys or jars, that chemicals are transferred to from the primary container once within the workplace.

According to OSHA, secondary containers must always comply with the labeling requirements. The only exception is if the secondary container meets the following criteria⁶:

- The material is used within the work shift of the individual who makes the transfer
- The worker who made the transfer is in the work area the entire time during use
- The container stays within the work area and in the possession of the worker who filled the container



BEST PRACTICE TIP

PROVIDE PICTOGRAMS AND LABEL FORMATS THAT ARE CONSISTENT WITH THE PRIMARY CONTAINERS. THIS REDUCES TRAINING TIME AND COSTS, AND PROVIDES A STANDARDIZED APPROACH TO LABELING, THUS REDUCING POTENTIAL INJURY AND RISK.

SECONDARY CONTAINER LABELING (CONT.)

For secondary container labeling specifically, OSHA has not changed the general requirements. That means that employers have the option to create their own workplace labels by either using all of the information that is on the label provided by the chemical manufacturer or using a combination of the product identifier, words, pictures and symbols to provide specific information regarding the hazards of the chemicals.

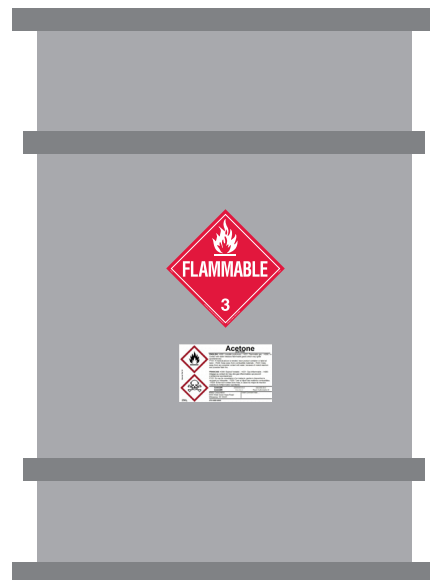
Employers may continue to use rating systems such as National Fire Protection Association (NFPA) diamonds or Hazardous Materials Identification System (HMIS) requirements for workplace labels. As long as they are consistent with the HazCom/GHS standard.

Always be sure:

1. Labels don't conflict with the requirements of the GHS Hazard Communication Standard.
2. Employees have immediate access to specific hazard information.
3. Employees are trained to be aware of the hazards of the chemicals used.

DOT PLACARDS

While GHS requires proper chemical labeling, the Department of Transportation (DOT) requires proper labeling when you're shipping chemicals. This means when the product is shipped, the outer package must bear all of the required DOT marks and labels as well as the GHS label information if it is a primary container. Essentially, DOT labeling does not change with GHS, but when the primary container is also the shipping container, you'll need both.



EPA

The Environmental Protection Agency (EPA) has not incorporated GHS into its Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) labeling requirements. Currently, a combination product that contains a pesticide and a fertilizer is regulated as a pesticide product under the FIFRA and must continue to be labeled in accordance with 40 CFR Part 156. However, some pesticide products may still be required to have an SDS.

Full implementation of GHS would require much time and effort from the EPA to complete economic and regulatory impact analyses and change current classification and labeling regulations. Because of this, the EPA foresees the alignment to GHS to happen in multiple stages over several years.

EXEMPTIONS TO GHS

A few blanket exemptions for particular substances can be found at 1910.1200(b)(6). These exemptions include:

Hazardous waste
CERCLA hazardous substances (those listed at EPA 40 CFR 302.4) within a remedial or removal action
Tobacco or tobacco products
Wood or wood products under certain conditions
Articles (an item whose use is dependent on its shape or design and does not release more than trace amounts of chemical, as defined at 1910.1200(c))
Food or alcoholic beverages under certain conditions
Any drug under certain conditions
Cosmetics under certain conditions
Any consumer product used in the workplace as intended for the same duration and frequency that a consumer would use it
Nuisance particles
Ionizing and nonionizing radiation
Biological hazards

CHAPTER 8

“GOOD FAITH” EFFORTS

You are against the clock and aren't
getting the information you need...
now what?

“GOOD FAITH” EFFORTS

OSHA created a memorandum in February 2015 to help you with compliance.

This memorandum could help manufacturers and importers who create mixtures of chemicals to avoid citations for failing to immediately comply with new SDS and chemical labeling requirements, as long as they exercise “good faith.” That means that the manufacturer or importer needs to demonstrate their attempts at obtaining the necessary SDS through a documented dialogue of communication with the upstream supplier.

“GOOD FAITH” SCENARIOS

The following OSHA scenarios will help explain the “good faith” efforts.



Will OSHA issue a citation to me for not supplying GHS compliant labels/SDSs after the June 1, 2015, deadline if I cannot obtain appropriate classifications and SDSs from my upstream suppliers?

No, if you exercise reasonable diligence and good faith to comply with the terms of the standard. (The upstream supplier will be subject to further enforcement action by the local area office)



What constitutes reasonable diligence and good faith?

The following efforts:

- Working to obtain classification information and SDSs from upstream suppliers
- Finding hazard information from alternative sources (e.g., chemical registries)
- Classifying the data yourself



When I finally receive the appropriate hazard classifications from my upstream supplier, how long do I have to comply?

You must create GHS compliant SDSs within 6 months of the date you receive all the hazard information for the ingredients in a mixture. You must create complaint container labels within 6 months from developing the complaint SDS

CHAPTER 9

TRAINING

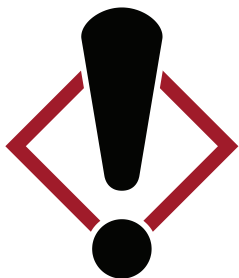
Training is at the center of all of your GHS activities. After all, you need your employees to know the program, understand the hazards of the chemicals they're dealing with and know how to stay safe in order to achieve compliance.

CONTINUOUS & ONGOING TRAINING

Employees should be trained on all elements of the new standard. They should know how to read and interpret hazardous chemicals and SDSs, and they should know where SDSs are stored.

Once the first training has been completed, it's important to keep up with the GHS standard and re-train employees throughout the year. Annual re-training is the best practice, but be sure employees are consistently informed of any changes in the program.

In addition, new employees should be trained on GHS, as well as any additional labeling your company is using.



BEST PRACTICE TIP

REGULARLY COMMUNICATE AND PROVIDE REMINDERS, SUCH AS SIGNS, POSTERS, INFO CARDS OR EMAIL UPDATES, TO KEEP EMPLOYEES ACTIVELY AWARE OF THE PROGRAM, ITS PURPOSE AND WHY IT BENEFITS THEM.

CHAPTER 10

CONCLUSION

Where to go from here.

With OSHA aligning its HazCom Standard with GHS, there are lots of changes to keep track of for chemical suppliers, manufacturers, users and test labs. From training to SDSs and chemical labeling, there is plenty of work to be done to achieve and maintain compliance. Now is the time to get on top of these changes to create a safe and compliant workplace.

NEED HELP WITH GHS TRAINING AND LABELING?

Brady has innovative training solutions, workshops, information posters, cards and signs, as well as printing systems, software and label materials to help you reach and maintain compliance.

**For more information
visit BradyID.com/ghs
or call (888) 250-3082.**

¹ Morrison, K. (2015). OSHA's Top 10. Retrieved from Safety and Health Magazine: <http://www.safetyandhealthmagazine.com/articles/11414-osa-top-10-2014-the-more-things-change>

² MSDSONline. (2015). *GHS101: History of GHS*. Retrieved from MSDSONline: <http://www.msdsonline.com/resources/ghs-answer-center/ghs-101-history-of-ghs>

³ OSHA. (2015). Hazard Communication. Retrieved from OSHA.gov: <https://www.osha.gov/dsg/hazcom/>

⁴ OSHA. (2015). A Guide to GHS. Retrieved from OSHA.gov: <https://www.osha.gov/dsg/hazcom/ghs.html>

⁵ OSHA. (2015). OSHA Fact Sheet. Retrieved from OSHA.gov: <https://www.osha.gov/dsg/hazcom/HCSFactsheet.html>

⁶ OSHA. (2011). Labeling and Transfer of Chemicals. OSHA Quick Facts.